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ORIGINAL ARTICLES.

CARE OF PUERPERAE.

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THE discussion of the above subject will be very informal and incomplete. To insure a normal convalescence after childbirth is indeed a matter of great importance, not only from the patient's standpoint, but also on the part of the physician, for the physician cannot be too careful as to details, nor too conservative in his management of puerperal women. I make this statement at the outset simply because if any complication develops, no matter how insignificant, the patient is very prone to attribute it to some omission in the treatment and so blame the doctor. It is much better, therefore, for him to lay down the necessary rules, because in this way if his instructions are not carried out his responsibility will cease.

Everyone will grant that a properly managed labor is absolutely essential to a smooth convalescence, unless Dame Fortune smiles favorably on the accoucher when mistakes have been made. By this I mean that the case is more apt to be a normal one when the asepsis and antisepsis have been perfect, when the labor has not been allowed to drag out too long, where little damage has resulted from the birth, where injuries, if any, have been carefully repaired, where the uterus has been properly massaged with little hemorrhage, and finally when the physician has completed the delivery, positive that nothing has been left behind in the uterus.

Assuming, therefore, that our prophylaxis has been carried out according to rule and to the best of our ability, what should we do for the care and comfort of the patient during the puerperium? Certainly every physician has his own ideas which appeal to him as correct. I am only going to take up certain parts of the subject such as in my experience seem to need discussion.

In the first place and of greatest importance is a continued asepsis after delivery. This falls to the lot of the nurse. When one is selected, we must be just as sure of her asepsis as of our own. She should always regard the vulva and also the nipples in the light of clean laparotomy wounds, for then we know that all precautions will be taken against infection at these points. Her hands must be sterilized before doing the dressings, or she should wear sterile rubber gloves. The bed linen should always be clean, the douche pan scalded, and in doing the dressings the vulva should be washed by irrigation from above downward, the parts cleansed from within outward and the anus swabbed last. For the first two or

three days I advocate a piece of gauze, wet with a 1-10,000 bichloride solution, placed over the vulva beneath the sterile vulva pad, which is kept tight in place by a T-bandage. These dressings should be changed and the parts cleansed with every movement of the bowels and with each urination, at any rate regularly every four hours for the first two or three days. Early vaginal examination and douching are to be condemned. These procedures should only be practised at an urgent indication. Nature is very reliable and undoubtedly more harm is often done by meddling douching than when we leave things alone. Later in the puerperium, after ten to twelve days, hot douches undoubtedly help the involution of the uterus.

Directly after delivery the patient demands a refreshing sleep, and all relatives and friends should be excluded. If sleep does not come on naturally, chloral by rectum seems to act most effectively. If the after-pains are severe and interfere with her rest, codeine is generally necessary. But after-pains can usually be limited by a proper massage of the uterus, by expression of clots by the physician before he departs after labor, and the administration of ergot directly after the expression of the placenta. In some cases where the uterus continues to relax immediately after delivery, I often give an intra-uterine douche of acetic acid with good results. This is justifiable for those patients who suffer almost as much or even more from after-pains than from the pains of labor.

I often doubt the efficacy of the abdominal binder. For the first two or three days it does keep down the gas and supports the abdominal walls. In short-waisted women who have carried the child high and well out in front, it certainly does prevent an anterior relaxation of the abdominal walls. But for women who carry the child low and well backward, they are more or less unnecessary. Consequently if such cases are bothered by the binder after the third to fifth day, I allow it to be discarded. Many women, however, are so anxious about their figures that they much prefer to be bound up and uncomfortable if by any chance the binder will preserve their graceful curves.

I believe that a fluid diet should be given for forty-eight hours after labor or until the bowels move. Then a soft diet is allowed for a day or so longer, for the digestion is always below par. A cathartic should always be given on the morning of the third day, followed by an enema, if necessary. The bowels should move daily by injections, if small doses of cascara at night are not effectual. I cannot agree with those obstetricians who allow their patients to sit on the commode

within the first few days after labor, if there is difficulty in urination or defecation. I know of patients who have fainted in the act and others who have pleaded with the nurse not to carry out the doctor's orders on account of their weakness. Besides, there is always the risk of a cerebral embolus. One case of this complication from the procedure in 100,000 cases would be enough to contra-indicate it altogether. Catheterization, of course, is often harmful but carried out when necessary under strict antiseptic precautions ought not to result in a cystitis. A great deal of trouble could be avoided by training the woman to use the bed-pan during pregnancy.

One of the greatest sources of discomfort to the puerperal woman is in nursing. This is very annoying, not only to the patient but also to the doctor. It is difficult enough nowadays to persuade women to nurse. They are unwilling to be tied down and cannot give up the many engagements which come to a city woman. There are enough patients who naturally cannot nurse either from insufficient or poor milk, from some taint, and from inverted nipples, but to have to give it up on account of sensitive and cracked nipples seems almost to be the last excuse. How can this be avoided? During pregnancy the nipples should be cleaned and softened by cocoa butter or albolene. If the nipple is small, it should be massaged. The hardening treatment I am not altogether in favor of, because I think it makes the nipple more easily injured during nursing. Then after delivery until the milk comes in I would put the child to the breast three times the first day and five times the second day, allowing it to nurse only a few minutes. The child can be readily fed and in this way the injuries avoided which are caused by vigorous sucking. If the nipples are sensitive, I would at once use a shield before any abrasions result. The general management of the nipple should be as follows: Cleansing before and after nursing with boric acid solution and then anointed with albolene. Of course the infant's mouth should also be cleansed with a boric acid solution before and after nursing. Then, most important of all, the nipples should be covered by sterile lint dressings, which are kept in place by the breast binder. In this way and also by cautioning the woman against touching the nipples, germs can be excluded and the greatest predisposing cause to mastitis avoided.

Associated with painful nipples is the distention of the breasts. Fortunately this lasts only for a few days. At the onset relief can be obtained by a strong nursing baby and by massage. At the same time it is well to put the patient on a dry diet, only allowing enough fluids to quench the thirst. In order to carry off the fluids by other channels saline cathartics are invaluable. When massage is ineffectual, breast pumps can be used, but both these manipulations are often more painful than the distention. They should be used, however, if there is caking. Locally, I think, an ice bag gives more relief than hot com-

presses. Occasionally a sedative such as codeine is necessary to produce sleep and allay the nervousness caused by the distention.

Our principal duty to the puerperal woman is to insure as complete an involution as possible. With this ultimate object in view we must commence early to accomplish it. On the second day the patient should be turned first on one side and then on the other; on the fifth day she should commence to lie on her abdomen for shorter or longer periods and be encouraged to sleep in this position if possible. This change in posture favors the escape of the lochia and allows the uterine ligaments to contract, so favoring the normal antelexion. One of the greatest difficulties is to keep the patient in bed long enough. One should insist on at least two weeks and longer if any signs of subinvolution persist. Then she should begin to sit up, being lifted to a chair, gradually increasing the length of the period, but she should not walk till the beginning of the third week. Even at this time she should spend most of the day in the recumbent position. If there is any rebellion on the part of the patient, generally all you have to do is to tell her that her future health depends on a slow convalescence and she will willingly carry out your directions. If involution is delayed, hot vaginal douches, boroglyceride tampons, ergot, quinine and strychnine are of great service.

Finally a routine vaginal examination should be made before any case is discharged. For at this time slight erosions and inflammations of the cervix, displacements of the uterus, involvement of the adnexa, and relaxations of the pelvic floor can more easily be corrected. Failure to advise the patient or family of any abnormal condition will often bring upon the physician irrevocable censure.

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TRAUMA AND CHRONIC COMPRESSION OF THE EPIGASTRIUM AS ETIOLOGICAL FACTORS OF GASTRIC ULCERS.¹

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A GREAT deal has been written regarding the etiology of gastric ulcers, but relatively little has been said regarding the mechanical element which figures in its causation. Even at this date the opinions of various authorities as to the influence of this factor are somewhat at variance.

I therefore feel justified in bringing forward this subject. Having, through the courtesy of Dr. Paul Cohnheim, the material of his polyclinic placed at my disposal, I have collected all cases of gastric ulcers treated in the clinic for the past five years and endeavored to ascertain what influence traumatism and epigastric compression—particularly long-continued compression—exerts in the causation of this disease.

Judging from the mode of origin of decubital ulcers at the heels, nates or any other part of the

¹ From the Polyclinic of Dr. Paul Cohnheim, Berlin.

body subjected to long-continued pressure, it is but reasonable to presume that gastric ulcers of like nature may be caused by chronic compression of any portion of the gastric walls. This presumption coincides with the fact that the prevailing opinion of to-day is that most gastric ulcers result from a local circulatory disturbance.

Owing to the frequency of chlorosis in the earlier years of life, females, up to the age of thirty are more often subjected to gastric ulcers, but after the thirtieth year, males are more prone to this disease. Taking into consideration the fact that men, owing to their occupation, are more liable to epigastric compression than those of the opposite sex, it is plain why ulcers occur more frequently in men than in women during the latter years of life.

The fact that the pyloric ulcers of males frequently lead to cicatricial stenosis with a subsequent gastrectasia, while the chlorotic ulcers rarely run such an unfavorable course, shows that the latter have a greater tendency to heal without subsequent complications. In all probability many cases of gastric dilatation thought to be due to perigastritis really owe their existence to cicatrices following traumatic ulcers.

Our clinical experience of gastric ulcers caused by trauma or by long-continued pressure of the gastric region without injury to the external abdominal walls is still very limited.

Many cases of complete ruptures of the gastric walls causing death in from one hour to several days have been reported, also cases in which the life of the patient was saved by immediate operation. But, excluding these cases of complete ruptures, there are a large number of traumatic incomplete ruptures, the exact location and extent of which can only be presumed by the clinician from the symptoms presented. These injuries, unless severe, have a tendency to heal, thereby excluding the verification of diagnosis by the surgeon or pathologist. This is the reason why so little is known regarding the local condition existing in ulcer produced by trauma or, in fact, caused by any other etiological factor.

Clinically, we know that constitutional diseases play a prominent etiological rôle and every physician is aware of the close relationship existing between chlorosis and gastric ulcer, but why the chlorotic subjects should be so predisposed has never been satisfactorily explained. According to Virchow's hypothesis these ulcers are caused by an interference of circulation due to thrombosis and a subsequent autodigestion. Even at the present time this view is generally accepted.

In their experiments on animals, Quincke and Dätwyler¹ found that artificially produced ulcers were much slower to heal in animals previously rendered anemic than in healthy ones. They concluded that in the presence of anemia, slight injuries of the gastric mucosa may develop into ulcers, and ulcers already existing require a longer period of time to heal.

Hyperacidity usually being present with ulcers, many authors attributed the ulcers to the excessive amount of hydrochloric acid while others were inclined to believe—especially in the presence of chlorosis—that the decreased alkalinity of the anemic blood was responsible. But deductions from a long series of experiments on animals, as well as clinical observation, confirm the fact that either one of these factors alone cannot be held responsible and that some concomitant anomaly must be present to favor the formation of an ulcer. There must be present some predisposing condition leading to an impairment of the vitality of the cellular structures.

That hyperacidity is not a necessary accompaniment of ulcer is proven by the fact that ulcers are sometimes associated with subacidity. Ewald, for instance, found hyperacidity present in about 34 per cent. normal, in 57 per cent. subnormal acidity in nine per cent. of all ulcer cases. Einhorn mentions two cases of ulcer with achylia gastrica. Probably this condition would be found more frequently were it not for the contraindication of the stomach-tube in any case where the existence of a fresh ulcer is anticipated.

Thermal causes, such as indigestion of hot food or drinks were at one time supposed to be quite a factor and held to be responsible for the frequency of ulcers in cooks, but there is no satisfactory statistical evidence that ulcers are more frequent in cooks than in persons following any other vocation. In fact, injuries to the mucous membrane by direct mechanical, chemical or thermal causes are of frequent occurrence but under normal circumstances heal very rapidly.

After these few remarks, we come to the subject under consideration, namely:

Trauma and Chronic Compression of the Esophagus as Etiological Factors of Gastric Ulcers.—Cases of traumatic ulcers following contusions of the abdomen have been reported by Leube, Wagner, Limont and Page, Duplay and a number of other authors, showing that they are not of infrequent occurrence.

After the clinical demonstration of traumatic ulcers by various authors, Ritter and Vanni investigated the existence of same experimentally on animals. For this purpose Ritter used dogs and found that severe blows in the region of the stomach often caused the formation of a submucous hematoma which later was dissolved by the gastric juice, leaving in its place an open ulcer. These results were substantiated by Vanni, who experimented on rabbits. Later Gross conducted a series of experiments, the results of which were similar to those of the above-named authors. He arrived at the conclusion that in an otherwise normal stomach, injuries to the mucosa, unless severe, would not lead to the formation of ulcers.

Traumatic injuries of the stomach, such as violent blows, may cause either a complete or an incomplete rupture of the gastric walls. Owing to the better protected position of the stomach, cases of complete rupture of this organ are not as

¹ See bibliography on page 56.

numerous as those of the intestines, but a curious fact in this connection is that the region of the stomach usually ruptured—the lesser curvature—is the part mostly protected. Complete ruptures are usually caused by an overdistention of the gastric walls by fluids or gases at the time of injury, thereby causing the part offering least resistance to give way (rupture by contrecoup).

Injuries causing incomplete ruptures with subsequent formation of ulcers can be divided into two classes. Firstly, injuries causing an extensive lesion limited to the mucous membrane; secondly, those injuries causing an extravasation of blood or a hematoma between the mucosa and muscularis, the pressure of which, together with the injuries to the vessels, cause a necrosis of the surrounding tissues.

Clayton reports a case of a boy who, two hours after being caught between the buffers of two railway trucks, was taken with severe pains, vomiting of blood and distention of the abdomen. Death ensued within twenty hours. Post-mortem examination showed no evidence of injury to the gastric serosa. On opening the stomach it was found to be ruptured in two places, midway between the cardia and pylorus, the injuries being limited to the mucosa which was stripped off from the underlying coat. The abdominal distention was caused by a hemorrhage from the lacerated spleen.

It is but natural that the gastric juice should act detrimentally upon injured surfaces, as in the case just quoted. It certainly is remarkable, especially when the pathological changes are taken into consideration, that injuries calling forth the most alarming symptoms, such as extreme collapse, intense localized pain, and vomiting or hematemesis, should be entirely healed in from two to three weeks. Yet many cases are reported in which all these symptoms were present, lending a most serious aspect to the case and, after two or three weeks' treatment, the patients were free from all pain, dismissed as cured and in all probability never heard of again. Naturally it would be of interest to know whether or not symptoms of ulcer developed in later years.

The following case of *ulcus carcinomatosum* is of special interest, as the first symptoms of the ulcer appeared one and a half years after the injury:

Case I.—R., coachman, aged forty-six years; six years ago, while currying a horse, was kicked in the epigastrium. Except for slight pains in the epigastric region, which lasted only a few days, patient suffered no inconvenience. Four years later, horse fell heavily on patient's abdomen, giving rise to slight epigastric pain. After several days' duration, pain disappeared entirely, appetite was good and he continued his work without any inconvenience until six months ago. At that time he first noticed pressure in the epigastrium after eating. This pressure later developed into severe lancinating pains, especially

after partaking of course food; soups and liquids causing no disturbance. Frequently these paroxysms of pain were relieved by vomiting. Several weeks later vomiting also occurred during the night, or early in the morning before breakfast, and then vomitus contained particles of food taken the day before. Patient lost about forty pounds in weight during the last three months. No hematemesis but melena occurred twice two months ago.

Status Præsens.—Cachexia with great emaciation. Heart normal. Fine crepitant râles in apices of lungs. Abdomen sunken and palpation reveals a slightly movable tumor, about the size of a walnut, in the epigastrium. Considerable quantity of dark chocolate-colored fluid was withdrawn from stomach in fasting condition. Examination of fluid revealed large amount of food remnants, yeast cells and sarcine; free HCl + T.A. = 78; blood-test negative. Patient passed about 500 c.c. urine daily, containing trace of albumin. Bile-stained sarcine, many fat crystals and encysted amebæ were found in feces.

Case being diagnosed as gastric dilatation due to *ulcus carcinomatosum* of pylorus, operation was advised. Three weeks later patient was operated, but death ensued within six days after operation and diagnosis was verified by autopsy.

This evidently was an ulcer due to traumata, the first symptoms of which appeared eighteen months after the last injury, the transformation of the simple ulcer into a carcinomatous one arising as a later complication.

Two somewhat similar cases of gastrectasia were reported by Krönlein. These were due to benign pyloric stenosis following traumata, one case being operated five months and the second eight months after the injury. Both patients complained of symptoms pathognomonic of gastric ulcer immediately after accident.

Ebstein mentions two cases of ulcer caused by the lifting of heavy weights. The overexertion probably caused a rupture of a gastric vessel leading to hemorrhagic infiltration of the mucosa and subsequent formation of ulcer.

Pauly reports a case of ulcer in a man who, to prevent a fall, threw his body violently backward. Slight gastric disturbance appeared immediately after accident, and six weeks later perforation of the newly formed ulcer occurred.

In an article on gastrectasia following traumata, Cohnheim cited seventy-four cases, six of which presented typical symptoms of ulcer soon after the injury, which finally led to pyloric stenosis.

From the foregoing we see that as long as the stomach is normally nourished and a sufficient quantity of blood circulates through its entire walls, the vital resisting power of the tissues prohibits autodigestion. But just as soon as there is an interruption of the circulation in any circumscribed area, gastromalacia is apt to follow. It is a well-known fact that normally, gastric juice will not destroy the delicate layers of epithelium dur-

ing life, but if, at the time of death, a considerable quantity of secretion is present it will destroy the walls of the stomach. The large number of cases of incomplete ruptures of the gastric walls, which in from two to three weeks are entirely healed, demonstrate the fact that unless the mucosa is extensively damaged the disease need not necessarily take on a progressive nature, but if a considerable area of mucosa is denuded from the submucosa, or its circulation cut off by the presence of a large blood-extravasation, autodigestion will take place and, as a result, a traumatic ulcer is formed.

In the polyclinic of Dr. P. Cohnheim, from which the following cases, as well as the case first cited, are taken, a great number of gastric ulcers are treated annually. A surprisingly large number of these patients give a clear history of chronic epigastric compression, and it is subsequently found that the cause of the ulcer can be traced directly to the patient's occupation.

The frequency in which these cases came under our observation, justly led to the belief that long-continued epigastric compression is to be looked upon as one of the most important etiological factors.

Owing to the importance of this subject, I will take the liberty of reporting the following cases which I am led to regard as instances of gastric ulcers due to this cause.

Before presenting the cases, however, I wish to state how, in this clinic, the diagnosis of ulcer is made long before the appearance of hematemesis or melena.

The paroxysm of localized pain appearing some time (from one-half to three hours) after meals, the intensity of which depends entirely upon the quality of food ingested, is considered the most prominent symptom of ulcer. Liquids or soups cause little or no distress, while solid foods bring on the most excruciating pains, often lasting until the patient vomits or takes either warm drinks or sodium bicarb.

These pains invariably begin in the epigastrium, are of a crampy, burning or lancinating character and have a tendency to radiate toward one or both sides into the back or upward toward the sternum. Of the remaining symptoms hematemesis, melena, hyperchlorhydria and the epigastric and dorsal painful pressure-points are of importance. The epigastric pressure-point is usually situated in the median line or a little to the left of it, immediately below the ensiform process, while the dorsal, as a rule, can be found to the left of the vertebral column, between the tenth and twelfth thoracic vertebrae. When present with other symptoms, hematemesis is of particular diagnostic value but, according to Hemmeter, occurring in only about one half of the cases, its absence is of no significance. Ehrlich lays special stress upon the so-called "painful emptiness" of stomach (Boas' *schmerz-hafte Magenleere*) which usually disappears after ingestion of foods, especially liquids, and he believes it to be one of the important symptoms.

According to Cohnheim's teaching, the severe cramp-like pains occurring regularly from one-half to three hours after meals, especially after ingestion of solid foods, is the most characteristic symptom of any lesion in the region of the pylorus—whether it be ulcer, fissure or erosion. The pain is due to the passage of the chyme over the eroded pyloric surface, causing a mechanical as well as chemical irritation, thus producing severe spasmodic contractions of the circular muscles of the pyloric end of the stomach. In the following cases this is the symptom most frequently found.

Case II.—J. L., female, forty years of age, seamstress. Patient was obliged to sew heavy garments, the work causing her to assume a stooped position most of the time, thereby producing constant pressure of the epigastrium.

After undergoing treatment for ulcer four years ago, patient was in good health until several weeks ago. She now complains of anorexia and nausea. Liquid foods give rise to a burning sensation in the stomach. One or two hours after ingestion of solid foods, she is attacked with severe crampy pains which begin in the epigastric region and then radiate toward the right side into the back. Appetite impaired. No hematemesis or vomiting.

Status Præsens.—Patient pale, anemic and emaciated. Has lost 30 pounds in the past few months. Abdomen sunken and abdominal walls relaxed. Heart and lungs normal. Epigastric and dorsal pain-points present. Examination of stomach contents one hour after the Ewald-Boas test breakfast shows contents well chymified, free HCl +, T.A. = 54. Aloin test negative.

Case III.—P. S., male, twenty-seven years of age, stonemason. Ulcer was produced in this case by continual pressure in the epigastric region caused by the position assumed while working.

When stomach is empty patient complains of burning pains in epigastric region which are immediately relieved by warm drinks. From one-half to one hour after meals, especially after solid foods, he has severe lancinating pains which begin in the pyloric region and radiate into the back. Hematemesis and melena present. Appetite good and bowels regular.

Status Præsens.—Patient well-nourished, heart and lungs normal. Epigastric pain-point present. Test breakfast well chymified, free HCl +, T.A. = 68.

Case IV.—H. S., male, thirty-five years of age, driller. Patient was obliged to press his abdomen against drilling machine causing a constant pressure to epigastrium.

From one to two hours after ingestion of solid foods, such as meat, cabbage, etc., patient is attacked with severe crampy pains. Soft foods or liquids cause no inconvenience whatsoever. Appetite good but afraid to eat on account of subsequent pain. No hematemesis; no vomiting; bowels regular.

Status Præsens.—Patient well-nourished.

Heart and lungs normal. Epigastric pain-point present. Was given test breakfast but on account of pharyngitis stomach-tube could not be passed.

Case V.—E. M., twenty-nine years of age, printer. This patient while at his work feeding press had constant pressure of the epigastrium from the "feed board."

Ten months ago patient was unable to work for eight weeks, having at that time crampy epigastric pains after meals. During this time hematemesis and melena occurred. At present he complains of mild attacks of pain after soups or liquids, but solid foods cause severe lancinating pains which occur from one to two hours after meals. Appetite good, but patient is afraid to eat.

Status Præsens.—Patient fairly well-nourished. Heart and lungs normal. Epigastric and dorsal pain-points present. Test breakfast not given.

Case VI.—A. G., male, thirty-seven years of age, bookkeeper. Patient while writing sat in a stooped position causing constant compression of the epigastric region. Has suffered for the past two years with gastric pains when stomach was empty. Relief was obtained by taking warm drinks. During past two months patient has severe crampy pains occurring from one to two hours after meals, especially after solid foods. These pains begin in epigastrium, then radiate toward both sides into the back. No vomiting but regurgitation of bitter tasting fluids. Slight melena four days ago. Appetite good and bowels are regular.

Status Præsens.—Patient somewhat emaciated. Heart and lungs normal. Abdominal walls relaxed and gastric region very sensitive to pressure. Epigastric and dorsal pain-points present. Test breakfast not given.

Case VII.—L. W., male, thirty-six years of age, laborer. Patient for the last eleven years has carried heavy weights, pressing same against his epigastrium. He complains of severe cramp-like pains occurring regularly from one to two hours after eating solid foods. These pains begin in epigastrium and radiate toward the back. At times patient has slight pains between meals which are relieved by eating light foods. Appetite good, bowels regular. Four years ago patient had same symptoms of several weeks' duration.

Status Præsens.—Well-nourished patient, but anemic. Heart and lungs normal. Normal habits. Epigastric pain-point present. Patient refused to take test breakfast.

Case VIII.—A. Z., male, fifty-eight years of age, shoemaker. In this case the continual pressure of the shoemaker's "last" against epigastrium caused chronic compression of same. Patient gives history of previous attacks typical of gastric ulcer. For the past three months patient complained of severe lancinating pains occurring regularly one-half hour after heavy meals. These pains usually started in epigastric region and

radiated toward both sides into the back. No appetite; bowels are regular.

Status Præsens.—Patient pale and emaciated. Heart and lungs normal. Entire epigastric region sensitive to pressure. From fasting stomach 20 c.c. of bile-stained secretion was obtained containing large amount of shrunken leucocytes and pavement epithelial cells, few starch granules, no sarcine, free HCl +, T.A. = 56. Test breakfast well chymified, free HCl +, T.A. = 84.

Case IX.—R. S., male, fifty-two years of age, shoemaker. Cause was constant epigastric pressure from "last." Since one year patient has had severe lancinating pains in the epigastric region occurring regularly three hours after heavy meals. At times he suffered slight pains when stomach was empty, which were relieved by warm drinks. During a previous attack several years ago, patient had an attack of hematemesis.

Status Præsens.—Great emaciation. Heart normal. Râles heard over apex of right lung. Normal habitus; abdominal walls rigid; no pain-points present. Owing to old pharyngeal cicatrices, it was impossible to pass stomach-tube.

Case X.—M. N., female, thirty-six years of age; acrobat. For many years while performing patient was obliged to have heavy weights press against epigastrium.

Patient complains of severe cramp-like pains occurring regularly one-half hour after meals, especially after ingestion of solid foods. Occasionally vomiting occurs at height of paroxysm of pain. Pyrosis appears after each meal. Appetite fair, bowels sluggish.

Status Præsens.—Patient fairly well-nourished. Heart and lungs normal. Abdomen slightly distended and tender to pressure. Epigastric pain-point present. Test breakfast not given.

Case XI.—P. B., female, thirty years of age, seamstress. Patient was obliged to work in a stooped position continually, causing her to have constant compression of epigastric region. She was in good health until eight weeks ago. Since then she is attacked with paroxysms of severe lancinating pains occurring about an hour after partaking of solid foods. These pains began in the epigastric region and radiated toward the left side under the border of the ribs. One year ago patient had a similar attack associated with hematemesis.

Status Præsens.—Patient is pale and emaciated. Heart and lungs normal. Abdominal walls relaxed; greater curvature of stomach extends to umbilicus. No pain-points present. Test breakfast not given.

Case XII.—A. H., male, thirty years of age, teamster. Patient's occupation required the carrying of heavy barrels, which he supported by the aid of his epigastrium. He was in good health until two years ago. At this time he complained of epigastric pains when stomach was empty, but was immediately relieved by ingestion of fluids or soft foods. Two hours after eating solid foods he was attacked with severe lancinat-

ing pains which began in the epigastrium and radiated toward the back. Patient vomited twice when pains were at their height. Appetite good; bowels regular. Two years ago patient had a similar attack associated with hematemesis.

Status Prasens.—Well-nourished patient. Heart and lungs normal. Epigastric pain-point present. From fasting stomach 35 c.c. of bile-stained fluid was withdrawn. Examination of same showed HCl +, T.A. = 32. Test breakfast well chymified, free HCl +, T.A. = 48.

Case XIII.—M. S., male, thirty years of age, policeman. Patient for many years wore a tight belt, the pressure of which caused him great discomfort in the epigastric region. For about one year he has suffered with severe cramp-like pains in the gastric region. These pains occurred regularly one-half hour to one hour after eating, especially after ingestion of solid foods. Vomiting occurred occasionally during the height of paroxysm of pain. Appetite variable. Bowels irregular with alternating diarrhea and constipation.

Status Prasens.—Heart and lungs normal. Normal habitus. Epigastric pain-point present. From fasting stomach very little fluid was obtained, which was slightly acid and contained only a few leucocytes. Test breakfast well chymified, free HCl +, T.A. = 40.

Case XIV.—O. S., male, thirty-two years of age, teamster. Patient was obliged to lift heavy weights and at times he rested same on his epigastrium. Some three months ago, while lifting a heavy log, patient felt a sudden pain in the gastric region. Since this incident he has had paroxysms of severe crampy pains in the epigastric region, which occurred about half hour after meals. These pains lasted from one to two hours. One month ago he vomited about one liter of dark blood and at this time had several tarry stools. Appetite good, bowels regular.

Status Prasens.—Patient anemic. Chest organs intact. Epigastric pain-point present. Test breakfast not given.

Case XV.—B. H., male, thirty-one years of age, bookkeeper. For a number of years, while writing, patient sat in a cramped position and was conscious of a pressure in the gastric region.

Since three months, he has had severe cramp-like pains occurring about one hour after meals. These pains began in the epigastrium and radiated toward both sides into the back. Appetite variable, bowels quite regular.

Status Prasens.—Patient well-nourished. Heart and lungs normal. Epigastric pain-point present. Test breakfast well chymified, HCl, T.A. = 78.

Case XVI.—A. K., male, fifty-two years of age, basketmaker. Patient for many years was obliged to work in a stooped position and most of the time pressed willows against his epigastrium. For about one year he has suffered from digestive troubles. Two or three hours after meals he was

attacked with severe crampy pains beginning in epigastrium and radiating toward the back. Pains usually ceased after taking warm drinks or sodium bicarb. Appetite good, bowels sluggish. Two years ago patient had a similar attack associated with melena.

Status Prasens.—Patient fairly well-nourished. Heart and lungs normal. Greater curvature of stomach extends slightly below umbilicus. Nothing obtained from fasting stomach. Test breakfast well chymified, HCl +, T.A. = 90. Patient's father, who was employed at same kind of work, complained of symptoms similar to these.

The paroxysms of localized epigastric pain coming on regularly (one-half to three hours) after meals, and the intensity of which as a rule depended upon the quality of food taken, occur in no disease excepting that of gastric ulcer. As further evidences of ulcer in each of the above mentioned cases we either had the presence of hematemesis, melena, vomiting or hyperchlorhydria together with the characteristic findings elicited by the physical examination.

All the cases cited had constant pressure of the epigastrium due to the nature of their occupation.

I could cite a large number of other cases in substance identical with the foregoing, but I believe those briefly sketched will serve my present purpose, viz., to maintain the importance of epigastric compression in gastric ulcers.

That I am not alone in my deductions requires but a perusal of the literature of Rasmussen, Ritter, Petry and many other writers on this subject, who have in the course of their publications arrived at the same conclusions.

In the latest editions of Boas, Ewald, Rosenheim and Hemmeter, this subject is mentioned only in the merest cursory manner. Riegel, however, devotes more space to it.

In 125 consecutive cases of ulcer treated in the polyclinic, 28 occurred in males and 97 in females, the majority of the latter occurring between the ages of twenty and thirty-five years.

The greater number of these females were employed as seamstresses. Their occupation caused them to lead an indoor life, predisposing them to chlorosis or anemia, and this combined with the pressure of corsets in bending over their work, can be pointed out as being the cause of their disease.

The frequency of ulcers in the male in the later years of life can be attributed to the compression of the epigastrium caused by their occupation. As seen in the above cases, we have several kinds of "occupation compression." Firstly, the continual pressure, such as exists in shoemakers, basketmakers, etc., caused by the "last" and "willows" respectively. Secondly, the temporary pressure caused by heavy weights resting on the epigastrium, such as teamsters are exposed to, and lastly, the epigastric compression of tailors, bookkeepers, etc., who are obliged to work in a stooped position.

Knowing that a large percentage of persons following such occupations are afflicted with this disease, epigastric compression deserves more than a passing notice, and we must regard it as one of the most important etiological factors.

The situation of the ulcers in these cases also seems to substantiate this view, the ulcers usually being found near the pylorus, this part of the stomach being more exposed to pressure.

Not only is long-continued compression of the epigastric region of interest from an etiological standpoint, but of value in the prophylaxis and treatment of this disease.

If this paper serves the purpose of directing general attention to this etiological factor of gastric ulcer, thereby aiding in its prophylaxis, then my object will be achieved.

I desire to express my thanks to Dr. P. Cohnheim for the use of his clinical material, as well as for his valuable assistance.

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THE NERVOUS SYMPTOMS ACCOMPANYING PERNICIOUS ANEMIA.¹

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THE first description of pernicious anemia and its recognition as a distinct disease we owe to Addison. His description mentions nervous symptoms which at the present time would be called neurasthenia. No mention, however, is made of organic changes until 1887, when Lichtheim published two cases, with autopsy. Other cases were published by his pupil, Minnich, in 1889, who showed that other toxic conditions would show the same anatomical lesions. Other cases of spinal cord lesions accompanying pernicious anemia were published in rapid succession. The same lesion was shown to accompany tuberculosis, carcinoma, leucemia, dementia paralytica, pellagra, septicemia, ulcerative endocarditis and Addison's disease. Still later, in pernicious anemia, degenerative changes were noted in the brain.

The symptom-complex presented by the degenerations in the spinal cord in all these cases, has been described as a separate disease under the name combined sclerosis. The cases present a certain similarity in the fact that degenerations

are found in the columns of Goll and Burdach, in the direct cerebellar and crossed pyramidal tracts. Occasionally Gowers' tract and the anterior pyramidal tract are involved.

The symptoms presented are easily understood when we consider those relative to isolated disease of the posterior tracts and isolated disease of the lateral tracts and combine them. This does not include the not infrequent cases of tabes which in the later stages show evidence of pigmented tract degeneration.

In cases complicating pernicious anemia the posterior tracts are involved earliest and the disease may not extend beyond this. In other cases, however, the crossed pyramidal tracts may be involved simultaneously or later. These cases have been studied by Dana and Putnam in this country, and Russell, Batten and Collier in England. They developed in a few months and terminated fatally in from one to two and a half years. These authors divided this disease into three stages. The first stage showed paresthesiæ with slight spastic weakness and slight ataxia. The second stage showed anesthesia of the leg and trunk, with a spastic paralysis of the lower extremities. In the third stage the spastic paralysis gave place to a flaccid one, with loss of reflexes, anesthesia, loss of control of the sphincters and, in extreme cases, muscular atrophy. Herpes, girdle pain and irregular temperature were noticed. Paralysis of the ocular muscles occurred, but never rigidity of the pupil.

Oppenheim divides the cases into two classes: (1) Those in which the symptom-complex of spastic spinal paralysis is combined with ataxia, bladder atony, lightning pains or other symptoms of tabes; (2) those in which the symptom-complex of tabes is from the beginning combined with motor weakness.

The following case shows the difficulty of clinically classifying the forms met with:

Case.—The patient, a white male, forty-seven years of age, complained of "weakness" and inability to control the lower limbs. His family history was good. His father died at forty-seven years of some liver trouble. The mother died when sixty-seven years of pneumonia. He had two brothers, one died in infancy, the other is living and well. One of four sisters died at fifty-seven years of "cancer of the stomach;" the others are living and well. There was no history of any nervous trouble, paralysis, epilepsy, insanity, tuberculosis or rheumatism in the collateral branches of the family. The patient was born in the Western States and had lived in Louisiana the greater part of his life. He had never been strong, and any extra work exhausted him. He had had the ordinary diseases of childhood. He had had malaria several times, as well as scarlet fever. He had never had typhoid fever, dysentery or diphtheria. He had had rheumatism when a child and for a few years slight "rheumatic" pains in his legs. They never were severe enough to cause him to leave work or to con-

¹ Read before the Orleans Parish Medical Society, New Orleans, La., September 10, 1904.

sult a physician. He had never, that he was aware of, been exposed to any metallic poison, lead, arsenic, zinc, etc. He had gonorrhea twenty years ago. He denied having had syphilis or its symptoms. He occasionally used alcohol, but not to excess. He never used tobacco. He used coffee freely, but no tea.

His illness commenced in June, 1902. While on his vacation he went horseback riding, the first time in many years, and slipped in dismounting. The horse moved, and in the fall the index finger of his left hand was hyperextended. There was pain and soreness, which disappeared in a few days and was forgotten.

In September of the same year, after a period of heavy work, he had a peculiar numb sensation in the tip of the finger of the left hand he had injured in the previous June. He paid no attention to this at first, as he was feeling in excellent health. This gradually spread until the whole finger had the same curious sensation. The four fingers of the same hand were next involved, and it soon extended to the whole hand. Soon after there appeared a sensation of pins and needles in the same region. He kept at work, but there was no improvement. Early in November, 1902, he had a sensation as if the blood left his hands with a rush, leaving them icy cold. During the attack his ability to write was impaired. The hands looked as if they were soaked in water. He consulted a physician and returned to work. He had a second attack, lasting half an hour, the same afternoon. A few days later he had a sensation as if an iron band were fastened around his waist. There was at the same time a feeling of oppression in the throat and abdomen. His appetite was good. He had no trouble with his bowels or bladder.

He remained in this condition until May of the following year, having occasional attacks similar to those above described.

He noticed, however, a gradually increasing weakness in his legs, disappearing when he walked. Shortly after he went to the mountains for a time. Here he noticed his ability to walk gradually diminishing. The numbness increased and now involved both hands and arms as high as the elbow. On returning, two months later, he was able to walk only a few blocks, and in a few weeks was confined to his house. In January of the present year he was able to get about on crutches. In April he was only able to walk from his bed to a couch with his crutches, assisted by two members of his family. He spent most of his time on the couch. Previous to this he noticed difficulty in picking up objects. There had been since the first of the year a gradually increasing stiffness in the legs. He had had no ptosis and no diplopia. His eyesight, he thought, had failed. He had had no muscular twitchings and no convulsions. He had had for many months cramps in the muscles of his legs. He had not lost in weight. He has had constipation for some months. For three weeks previous to the writer's

observation he had had some difficulty in emptying his bladder.

The patient was first seen by the writer early in May. He was sitting in a chair propped up by pillows, with his legs elevated. He was well nourished, in striking contrast with his great weakness. The skin was of a curious lemon-yellow tint. The tongue was thickly coated. The slightest movement called forth an effort out of all proportion to that usually necessary. He was unable to stand or walk without assistance. The right leg was occasionally involuntarily drawn up. His appetite was poor. Pulse, 89; respiration, 24; temperature, 98.4° F.

The examination of the lymphatics was negative. The thorax was somewhat barrel-shaped. The lungs showed nothing beyond a slightly prolonged expiration. The heart showed no visible or palpable apex beat. The dulness was within the normal limits. On auscultation a faint blowing systolic murmur was heard at the apex, loudest over the second left costal cartilage. The pulse (84) was regular, of fair volume and rather low tension. The artery wall was just palpable. The urine was of a deep amber color, acid in reaction, with a specific gravity of 1.022. There was a trace of albumin, but no sugar; microscopically there were a few hyaline casts and much debris. The blood was thin, watery and light in color. The hemoglobin was 55 per cent. (Gowers). The red blood corpuscles 1,900,000 and leucocytes 8,000. There was slight poikilocytosis and many megalocytes. Twenty-three megaloblasts were counted in counting four hundred leucocytes. The presence of megaloblasts was constant from this time until death.

The Nervous System.—There was no disturbance of the sense of smell. The patient complained of some disturbance of vision. An ophthalmoscopic examination revealed the presence of several small recent retinal hemorrhages. The pupils reacted to light both directly and concentrically. The accommodation reflex was active. There was no ptosis, diplopia or nystagmus. There was slight tremor of the tongue. The examination of the other cranial nerves revealed nothing. The motor power was much diminished, but equally so on the two sides, and was in striking contrast to the appearance of the muscles, which presented no sign of atrophy. There was some spasticity in the lower limbs, most marked on the right side. There were, at irregular intervals, painful contractions of the calf and thigh muscles of the right leg. These were accompanied by pain and, when at all frequent, were followed by great exhaustion. The handwriting showed no affection beyond that due to the ataxia in the arms. Speech was slow; the words were spoken with much difficulty and only after considerable effort. There was no aphasia. The reflexes of the upper extremities were all very active (scapular, supinator-biceps and triceps). The knee-jerks were greatly exaggerated. There was a well-marked patellar clonus on the

right side. Babinski's sign was present on both sides. There was no jaw clonus. The supra-orbital reflex and the reflex produced by tapping the facial nerve were active. The cremasteric and abdominal reflexes were active. There was a complaint of numbness in both hands and feet. Examination revealed diminished sensation in both legs below the knee and in both arms below the elbow, to pain, touch and temperature. There was no astereognosis. The deep sensations were not tested. Ataxia was marked in both upper and lower extremities.

The patient for two months past had had difficulty in urination, manifested chiefly in starting the flow. The bowels had been constipated, requiring the daily use of laxatives. The course was progressively downward. The difficulty in taking food increased, owing to the condition of the mouth and the nausea induced. He occasionally had sensations suggestive of girdle pains, a feeling of an iron band encircling the abdomen. The cramps in the right leg increased in severity, and were now evident in the left leg. Several days later the patient had an epileptiform attack. The movements in his legs for several hours preceding the attack became more and more violent. The onset was marked by a feeling of an iron band encircling the abdomen. This was rapidly followed by slow, violent contractions in the muscles of the legs, trunk and arm. The contraction would commence suddenly, slowly progress to a maximum, and remain for five seconds, then suddenly relax. These attacks continued for half an hour, unless moderated by treatment, and gradually ceased, leaving the patient wet with perspiration and completely exhausted. The pain accompanying them was excruciating. There was no loss of consciousness. The patient had ten attacks in all. They were only controlled by morphine. He became slowly weaker and unable to move voluntarily. The reflexes now slowly disappeared and the paralysis became a flaccid one. The disappearance was gradual, first the ankle clonus, then the knee-jerks, then those of the upper extremity. Babinski's sign was present until the end. The difficulty in urination increased to complete retention. The patient died probably from some terminal infection, as his temperature slowly rose during the last forty-eight hours to 110° F. No autopsy could be obtained.

This case corresponds in its main features to the cases of Dana, Putnam and others described in outline above, and corresponds to the type usually seen with pernicious anemia. It illustrates the necessity for prolonged observation in order correctly to classify them. Cases of spinal cord lesions accompanying pernicious anemia may or may not present symptoms. Nonne found that while 10 out of 17 cases showed lesions post-mortem, only two showed symptoms during life. The lesions in the cases showing no symptoms may be as marked as those presenting symptoms as severe as in the case reported.

Bastianelli has noted that the spinal cord symptoms may antedate the presence of anemia. In this case the numbness was the first symptom noticed, but there is no record of the blood condition, so it is not possible to say which was the primary symptom. Lapinski has shown that loss of blood without toxic changes will produce disappearance of the Nissl bodies in the cortical cells, of the cells of Purkinje and those in the anterior horn of the spinal cord. The symptoms produced are sensory changes and increase in the reflexes.

This may serve to explain those not infrequent cases with symptoms and no post-mortem lesions. Changes in the peripheral nerves are not at all or only rarely observed.

As arsenic is constantly used in the treatment of pernicious anemia, the occurrence of sensory disturbances may in some cases be due to a peripheral neuritis and not to lesions in the spinal cord. As far as the writer is aware, no observations have been made in this direction.

The etiology of these lesions, as well as the etiology of pernicious anemia, still remains in doubt. The generally accepted view is that expressed by Bödeker and Juliusberger, that both the anemia and the nervous system lesions are due to the same cause, whatever that may be.

Charlton produced similar lesions in the cord by repeated injections of colon bacilli. Von Vofs failed to produce lesions by the injection of poisons, (pyrocin).

The method of production of the lesions and their position seems to depend on the circulatory distribution. The patches of degeneration result either from a fibrosis of the capillary wall or a true endarteritis. Lenoble considers that there is a primary thrombosis due to the altered blood condition, with stasis and rupture of the already weakened vessel wall. Hemorrhages are well-known to occur in the retina and were present in this case.

In this connection it is interesting to note that hemolysins have been demonstrated to occur intermittently in the urine in pernicious anemia by Morris.

The condition of the mouth and gastro-intestinal tract suggest that the view of Hunter that oral sepsis is the etiologic factor, is supported by this case. These symptoms were, however, of comparatively late development.

Other symptoms, as optic atrophy, pupillary phenomena, convulsions and hemiplegia, have been noticed. Ziehen calls attention to the neurasthenic symptoms which occur in this disease.

The mental symptoms seemed to have received little special attention. Nearly all writers have noted the apathy and indolence in these patients and their increasing inability to accomplish any mental work. Addison, in his description of this disease, states that "the mind occasionally wanders." Ziehen speaks of the occurrences of stuporous conditions and sometimes of hallucinatory excited states. Grantly, in speaking of these,

says that they are usually transitory and end in bodily improvement. Other writers speak of loss of memory and delirium.

Marcus has recently described a case lasting six months, in which the psychosis took a form resembling dementia paralytica, with delusions of grandeur. This lasted six months and ended in recovery.

Pickett, after describing the mental condition in five cases, concludes as follows: "A composite picture of the mental disturbance in those cases presents a shallow confusion, with impairment of ideas in time and place (disorientation) more marked on waking from sleep. Illusions particularly of identity are common. Hallucinations appear at times, pertaining to any of the special senses. Based upon these illusions and hallucinations, persecutory delusions arise. These are usually transient, but may persist for considerable periods.

The case reported showed occasionally some irritability, but apart from the apathy there was no more marked mental disturbance until a few hours before death. The disturbance at that time, owing to the high temperature, could not be called a pernicious anemia psychosis. Another case, complicated, however, by an organic brain lesion, observed by the writer, and to be described elsewhere, committed suicide by cutting his throat and throwing himself from a window.

Those interested in this subject are referred to *Des scléroses combinées de la moëlle* by Crouzon, Paris, 1904, where a number of cases are reported, and references to literature will be found.

PROSTATECTOMY IN EMERGENCY CASES.¹

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It is not the intention of this article to enter into the historical aspect of so thoroughly discussed a subject as the surgical procedures advocated in prostatectomy, but merely to call attention to the advantages of doing a prostatectomy in every instance possible when the prostate is in part the cause of obstruction in cases coming under the head of emergency drainage of the bladder. I cite records of eight cases in this paper that belong distinctly to this class in which relatively six different emergency indications are dealt with. They are as follows:

1. Impassable urethra due to stricture with rupture and gangrene of the entire scrotum and perineum.

2. Retrograde hemorrhage, bladder being full of clots and bloody urine, with malignancy of the prostate.

3. False passage; retrograde hemorrhage; suprapubic aspiration with infiltration of the abdominal wall extending to the thorax and to the gluteal regions.

4. Acute obstruction due to exposure to cold and wet, inability to catheterize; trauma of the urethra.

5. Trauma of the urethra; catheterization for several days, retrograde hemorrhage, etc.

6. Deep stricture of the urethra; obstruction; catheterization cystitis with absorption.

In each case cited above drainage alone by perineal or suprapubic section would have been the operative procedure in former years and in the hands of the ultra conservative I am quite satisfied is still advised. I am of the opinion that drainage by prostatectomy in these cases is the only method of procedure and have come to the conclusion that the perineal route is the one to be selected in practically every instance. Urethral section, i.e., internal urethrotomy with a Bottini operation is impracticable in all of these cases.

Suprapubic section can be considered only in those cases in which the prostate is not removable as a result of extensive malignancy. Personally I would limit the selection of the suprapubic route to cases of inoperable malignancy of this gland when obstruction to the urine outflow is complete or when the condition of urinary decomposition, etc., are such as to demand operative relief. The type of perineal operation performed by me in each of these cases and in all ordinary or elective prostatectomies is that after the method of the late Dr. Bryson and performed and advocated by Dr. Goodfellow, of San Francisco, i.e., a perpendicular incision in the raphe and in the deep urethra upon a guide, when possible, then enucleating the gland by attacking it from the prostatic urethra. I never have seen the profound sepsis or symptoms of toxemia when the perineal type of operation was done that we see in suprapubic cases.

The patient is not compelled to assume the prone or almost prone position, but is ordered to sit up in bed as early as the second day, proper precautions being taken to prevent pinching or kinking of the tube, and is in the upright posture or out of bed, provided that the bladder conditions permit the removal of the tube, on the third or fifth day. There is no question but that this posture and method of treatment is advantageous, providing not only for proper drainage but also preventing hypostasis, a condition often seen in the feeble and aged when occupying the recumbent posture. As a secondary matter the patient is not lying constantly in wet dressings risking early decubitus, etc. A much earlier flow of urine by the anterior urethra is insured by this posture as a constant state of apposition of the buttocks is produced while the patient is sitting, thereby insuring a more rapid adhesion of the surfaces of the wound and repair of the incised floor of the urethra.

Of the eight cases reported in this paper, six have made recoveries. The two deaths should have no bearing for argument from a statistical standpoint upon the justifiability of the emer-

¹ Read before the New York State Medical Association, October, 1904, and The Medical Association of Northern Berkshire, December, 1904.

gency operations as can be seen by reading the histories, but they are included in this paper to show the type of cases one has occasionally to contend with.

Case I. Impassable Urethra Due to Stricture with Rupture of the Urethra, Gangrene of the Entire Scrotum and Portion of the Perineum, etc.—Unfortunately an overzealous house surgeon assumed responsibility in this case for two days before reporting the patient, although daily visits were made by myself to the wards. David G., sixty-two years of age, admitted September 3, with a history of having had difficulty in voiding his urine for eight days previous to admission noticed considerable difficulty in passing his urine, then that the scrotum and tissues round about began to swell and continued doing so until the day of his admission. On this day it was observed that the scrotum and perineum were in a foul and gangrenous condition. The house surgeon made numerous free incisions inserting gauze drain. The cause not having been understood by him no attempt was made to give free exit to the urine. When seen by me on September 5, owing to the complete destruction of a portion of the bulbous and deep urethra no instruments could be passed. A filiform was finally made to pass into the bladder and a perineal operation was then done upon this as a guide. The prostate was found enormously enlarged and was readily removed, tube inserted, bladder irrigated. The patient, in addition to having the gangrenous condition mentioned, was also suffering from a delirium which we were led to believe was due to alcohol, as some of his friends stated that he had been rather a hard drinker. The condition of delirium deepened, the patient dying on September 9, four days after the operation. The sloughing area did not extend after the operation.

It will readily be understood that in this case, although from a statistical standpoint it must be included in the mortality rate of prostatectomies, the conditions were such that death would have followed without question had a simple perineal section been done as the prostatectomy did not take more than six minutes and the hemorrhage was not of any extent whatever.

Case II. Retrograde Hemorrhage, Filling the Bladder with Clot and Bloody Urine.—Patient, seventy-one years of age, in a miserable physical condition, seen by me on September 16. Had been a sufferer from frequent urination for ten years, arising at night two or three times and voiding quite frequently during the day. For several weeks before he had had a diarrhea, which was finally controlled by quinine, he having given a distinct malarial history. Ten days before being seen by me he had a slight hemorrhage from the urethra. This latter portion of his history was obtained three weeks after the operation. The day before being seen by me he had a complete obstruction for which he was readily catheterized by his physician. Again, on the fol-

lowing morning, it was necessary to catheterize him. As a result of these two catheterizations, a very large amount of bloody urine was passed and accompanied by straining and expelling of clots and blood by the urethra. When seen by the family physician on the 16th, ordinary catheters could not be introduced. When seen by me, prostatic catheters passed without any difficulty but no urinary outflow followed. The bladder was found to extend fully five inches above the pubis, rather firm and painful to sense of touch. A diagnosis of a retrograde hemorrhage with, in all probability, clot filling the bladder was made. Irrigations were made, washing away blood clot and some bloody urine. Operation was advised and was done at eight o'clock that evening.

At the time I opened the bladder, no difficulty was met with in introducing an instrument. Perineal section was done with practically no hemorrhage. A large quantity of clot was extruded; a dull uterine curette was then used to evacuate a still greater quantity of clot. The bladder was irrigated and the prostate removed. Upon examination at the patient's house, the prostate was found to be as large as an orange, hard, stony in character, with evidence of invasion of the sides of the pelvis. A tentative diagnosis of malignancy was made at that time.

At the time of the operation it was found that the prostate, although the tissues were pretty thoroughly invaded, could be removed; feeling that the patient's condition demanded free outflow of urine, we decided upon its removal.

Upon opening the capsule of the prostate a very vigorous hemorrhage took place; in fact, so profound that for a time it was felt that no further interference should be made. By packing for two or three minutes, however, and continuing the enucleation from above and then removing the packing, the hemorrhage was found to be controlled; in fact, after the first three minutes there was no further hemorrhage worthy of mention. The prostate by microscopical examination was proven to be carcinomatous. The tube in this case was removed upon the fourth day, the patient sitting up each day following through a period of one-half to two hours. October 19. This patient still has complete atony of the bladder, having 12 ounces residual urine on October 18, and a very foul bladder, said to be due to sloughing carcinomatous tissue.

Case III. False Passage, Retrograde Hemorrhage, Suprapubic Aspiration with Extravasation of Urine into the Space of Retzius, also in the Abdominal Wall up to the Costal Arch, upon the Back down to the Gluteal Region. Complicated by Delirium Tremens.—Patient, sixty-five years of age, hard drinker, occupation, outside man, suffering from delirium tremens. Was seen by the family physician two days before calling me, at which time he was unable to catheterize the patient, so aspirated him with a trocar and canula, entering about five inches above the symphysis. When I saw the patient his condi-

tion was one demanding an immediate drainage of the bladder. Owing to the suprapubic extravasation, I deemed it advisable to recommend free incisions of the abdominal wall, also of the dorsum and gluteal regions to open the space of Retzius and to drain the bladder by means of the perineum. This latter step seemed advisable owing to the conditions of delirium from which the patient was suffering. This was done three hours later; the prostate, readily palpable, was removed within six minutes; five large incisions were made upon the abdominal wall, the median one entering the space of Retzius, the others simply going down to the aponeurosis of the external oblique, while posteriorly several incisions were made through the cellular tissues. The hemorrhage was slight from these wounds while the elimination of urine was considerable. A tube was introduced into the bladder and gauze packed in the abdominal and dorsal incisions. The condition of delirium, which was exceptionally great before the operation, was progressively afterward, the patient dying within two days.

This was the second case of death and also from a statistical standpoint increased the mortality rate, but, from the moribund condition of the patient previous to the operation, should not be included under the head of death due to prostatectomy.

Case IV. Acute Obstruction Due to Exposure to Cold and Wet, Inability to Catheterize, Trauma to the Urethra.—Patient, sixty-seven years of age, laborer by occupation, constantly exposed to the changes of the weather, became wet and chilled and could not void his urine as a result, this being the first manifestation of any bladder trouble whatever. When seen by his family physician and another in consultation both found it absolutely impossible to catheterize; as a result of the efforts trauma was induced and bloody urine overflow followed. On examination the prostate was found somewhat enlarged, chiefly involving the left lobe, bladder extending within two inches of the umbilicus. The patient was prepared for operation by the family physician. When under the anesthetic an instrument passed into the bladder without difficulty. Some bloody urine withdrawn, perineal section made, prostate removed, tube introduced, bladder irrigated, tube removed on the second day, patient made a recovery.

Case V. Trauma by Catheter. Catheterization for Three Days. Large Prostatic Obstruction, Retrograde Hemorrhage.—Patient, seventy-four years of age. History of relatively little or no bladder trouble. Sudden onset; first attempt at catheterization readily accomplished by the family physician but followed by some blood; second attempt at catheterization obstructed evidently by spasms of the urethra, passing some amount of bloody urine, patient suffering now from overflow. When called to see him found to have an overflow of bloody urine. Catheterization readily accomplished. Suggested opera-

tion; interference refused. Catheterization continued by the family physician for three days, obstruction at the end of the third day was well marked with inability to catheterize. Operation accepted.

Patient large, well-preserved person for his age. Prostate size of an egg, perineal section made, prostate removed within a few minutes, fair amount of hemorrhage, tube introduced, bladder irrigated, tube removed on the fourth day and patient sitting up. Discharged from the hospital on the tenth day. Perfect recovery recorded later.

It was observed while doing the prostatectomy that a false passage had been made between the rectum and the neck of the bladder of an extent sufficient to introduce a large English walnut. This in all probability accounted to a degree for the moderate amount of hemorrhage at the time of the removal of the gland.

Case VI. Deep Stricture of Urethra, Obstruction, Catheterization, Cystitis with Pronounced Absorption.—This case demanded drainage and washing due to infection. Patient's age 68 years, admitted on March 4, history of having been catheterized, etc. For two days before admission he could not urinate, was catheterized by his family physician. For thirty-six hours previous to his admission to the hospital no urine was removed or passed. Bladder was aspirated suprapubically on date of admission. On March 6, the patient presented symptoms of absorption. Rectal examination showed that the patient had quite a large prostate. Suggestions were made to him that it would be to his interest to have his prostate removed at the same time that his bladder was drained. This was accepted. A filiform guide was passed into the bladder, perineal section done through which the prostate was removed. Patient sitting up in bed the third day, although his tube owing to the condition of the bladder was retained until a week later. He was finally discharged from the hospital cured within about eight weeks.

Cases VII and VIII were obstructions with slight trauma to the urethra in which it was advisable to operate for reasons both of trauma and for drainage.

Case VII was a patient sixty-five years of age; admitted August 18. Conditions were such that a perineal drainage was demanded. Prostate found enlarged and removal advised at the same sitting; accepted. Patient made a recovery.

Case VIII was a patient sixty-eight years of age with obstruction, cystitis, impassable urethra, perineal section done without guide. Prostate removed at same sitting, patient recovered.

This emergency operative procedure is recommended because: (a) Only a few minutes more are required to remove the gland, the hemorrhage as a rule is not excessive, and the operative procedure itself does not increase the shock to

any degree. (b) The removal of the prostate gives proper exit to the urinary outflow and admits of easy drainage. (c) Washing the bladder is much facilitated.

The perineal route is recommended in emergency operations because: (a) The opening is practically at the lowest point of the bladder and complicated devices for drainage such as are necessary in suprapubic sections are not required; (b) The old, being irritable and feeble and requiring to be moved frequently, the drainage in the suprapubic method is constantly interfered with, while in the perineal method it is readily controlled. (c) The after soiling, when the tube is removed, is slight and easily controlled in the perineal method as compared with the suprapubic. (d) Bladder irrigations are more readily done with less soiling to the bed, etc., by this method.

OBSERVATIONS ON THE BLOOD PRESSURE IN DISEASE.¹

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THE present tendency in medicine is to substitute methods of precision for methods of approximation, using the terms in a relative sense. The greater the accuracy attained in studying the various phenomena of the human organism, the better will be our insight into not only physiological but pathological manifestations. Among the most recent of the unexplored fields to be examined is that of the blood pressure. It was as late as 1887 that what might be termed the first practical sphygmomanometer was introduced by von Basch. Other workers since then have described modifications of the von Basch idea or have themselves constructed new instruments, but it is only within the past six or eight years that the subject of blood-pressure determination has awakened general interest. Although the various pieces of apparatus made for this purpose should not supplant digital estimation of the arterial tension, they should be used for purposes of greater accuracy and control. The problems which present themselves for solution in the field of arterial pressure are many and offer abundant opportunity for investigation. The next few years will in all probability yield apparatus of greater utility than we now possess, but at present not the least vexing of the questions one is called upon to decide is the choice of a sphygmomanometer.

Instruments of various forms have been devised but it seems unnecessary to enter into a detailed description of them. It may be said, however, that in general those now most in use may be divided into two groups. One is, per-

haps, best represented by the Gärtner tonometer, in the application of which a finger is rendered anemic and the artery supplying it occluded by pressure which is slowly lessened until the first flush is seen under the nail. The pressure is then read on the manometer. This gives the systolic arterial pressure. This instrument, while it possesses several advantages, such as ease of application, has also some disadvantages, among which may be mentioned the difficulty of seeing the flush in cases of marked anemia and in negroes. In cases of either very low or very high tension the instrument is not satisfactory, according to Cook and Briggs.¹ The fact that only one band or ring for compressing the finger is supplied with each instrument is also a drawback, for the diameter of the ring cannot be altered and there are cases in which it can be applied to none of the fingers. This objection could, of course, be overcome by ordering rings of different diameters. The rubber of which the rings are made is also peculiarly lacking in durability, in this climate at least. There are many observers, nevertheless, who prefer this form of instrument, for such reasons as ease of application and the avoidance of any considerable amount of soft tissue overlying the artery, to the Riva Rocci sphygmomanometer which may be taken as an example of the second class. With this instrument the brachial artery is compressed by the pressure of a rubber band or cuff around the upper arm, the cuff being hollow and connected by tubes to a mercury manometer; the pressure inside the tubes is raised by means of a hand bulb. When the pressure inside the cuff is great enough to occlude the artery, the radial pulse disappears and by gradually lowering the pressure, the pulse reappears, the point between these two being taken as the maximum or systolic pressure.

The important question with any of these instruments pertains to their accuracy, and upon this point much work has been carried out. The first factor which one might think of is the influence of the tissues overlying the artery. This is of especial importance in connection with the Riva Rocci apparatus. What effect, then, has the size of the arm upon the pressure in the manometer? Hensen² considered that it had none if we take the precaution of having the arm muscles relaxed. Gumprecht,³ on the other hand, believes that the pressure exerted on the brachial artery may be 30 to 50 mm. lower than that in the cuff, basing his opinion upon experiments carried out upon the cadaver; the error, as a rule, increases, the higher the reading. H. von Recklinghausen⁴ believes the amount of soft parts of the upper arm to be a negligible factor, if we modify the apparatus slightly, as will be pointed out shortly. Cook and Briggs,¹ who have done considerable clinical work with the Riva Rocci, say that they regard the size of the arm as of little importance unless in cases of extreme cachexia, when the absence of the

¹ From the Clinic of Internal Medicine, of Dr. Dock.

cushion of tissue may give a reading which is too high. On the other hand, excessive muscular development or an excessive amount of subcutaneous tissue may give a high reading, as was indicated by the Research Committee for the Division of Surgery, Harvard Medical School.⁶ This observation was confirmed in a striking case of our own. We tried to take the blood pressure of a woman whose arm measured 37.5 cm. in circumference. We raised the pressure until the mercury had reached the top of the glass tube (graduated to 350 mm.) and almost filled the small funnel-shaped enlargement on the top of the tube, but could get no obliteration of the radial pulse. With the Gärtner instrument we found a pressure of 135 mm. Aside from these extremes, however, it would seem that the amount of soft parts of the arm may not be as great a factor as would appear at first sight.

So closely connected with the size of the arm that a discussion of one is almost impossible without a consideration of the other is the effect of the different widths of the cuffs used to compress the artery. There is more unanimity on this point and there can be no doubt that the narrower bands (4.5 cm.) give higher readings than the broader ones. To von Recklinghausen⁴ belongs the credit, we believe, of first drawing attention to this subject. He found that a cuff 10 cm. broad sufficed for the average arm (24 cm. in circumference), while a cuff 15 cm. wide answered for practically all cases, though the most accurate results were obtained from a band covering the entire upper arm; such a band as the latter, however, would be cumbersome and inconvenient for clinical purposes. Erlanger,⁶ in some work upon dogs, found that with a narrow cuff (3.5 cm.) an error of 50 mm. mercury might be made by the resistance offered by the tissues, while with a 9 cm. cuff he thinks the error would never be greater than 10 mm. Hg. Groedel and Kisch,⁷ investigating the same subject on an arm measuring 30 cm. in circumference found that the Riva Rocci instrument with a 4.5 cm. band showed a pressure of 168 mm. Hg.; with a 12 cm. band 128 mm.; with one 15 cm. wide 118 mm. Hg. Stanton⁸ contrasted the pressures given by 5 cm. and 10 cm. bands on a series of five cases in which the arms measured from 19 to 23 cm. in circumference and found in two cases a difference in the readings of 20 mm.; the smallest error in the five cases was 8 mm., the average being 15 mm. As a comparison he also made observations with the two bands on thighs measuring from 29 cm. to 35.5 cm. and found in some of these cases differences as high as 120 mm.; the smallest difference in this instance was 45 mm. It seems to us, however, that his work would bear out what we have said above, viz., that while the size of the arm is undoubtedly a factor to be reckoned with, it may not be of great importance in the majority of cases. How wide the cuff should be remains

a question. The Harvard Research Committee, referred to above, report that they found that the 10 cm. band gave practically the same readings as wider ones. In two of Stanton's cases the 10 cm. band gave the same readings, whether taken from the arm or the thigh, while in the other three cases the differences ranged from 10 to 25 mm. Erlanger has adopted a cuff 12 cm. wide. Although we have only recently begun to inquire into this phase of the subject, we are convinced that von Recklinghausen's recommendation has thus far received too little heed, and that a wide cuff will in the future give the most satisfactory results. In every case in which we have made determinations with both narrow and broad cuffs, the former has given the higher reading. We believe, therefore, in view of the experience of others, as well as from our own limited experiments, that a band 12 cm. wide or, preferably, one measuring 15 cm., should be used in connection with the Riva Rocci apparatus, and that such a cuff would give fairly accurate results.

It must be acknowledged, however, that thus far we have no absolute proof that any of these instruments are correct. True, many of them have been tested upon animals or fresh cadavers, but none have been controlled by actual experiments on human beings. As a matter of fact, there are very few cases in medical literature in which human blood pressure has been taken directly. In 1857 Faivre found, according to Hensen,³ in an amputation case, a pressure of 120 mm. Hg. in the femoral artery of a man aged thirty. In a man of sixty the pressure in the brachial artery registered the same. In another case (man aged twenty-three) a pressure of 110 mm. Hg. was found in the brachial artery. Albert⁹ in 1882 found a pressure registering from 100 to 160 in the anterior tibial artery; the pressure varied 10 to 20 mm. when the body was changed from the horizontal to the vertical position. As the results of these experiments agree fairly well with those given by the various sphygmomanometers, it would appear that we are justified in believing that the instruments now in use give approximately correct readings.

Besides the size of the arm and the width of the cuff used there are other factors that must be taken into consideration in estimating the blood pressure. First, the condition of the blood vessels is of some importance, but this can be discussed to better advantage under the various diseases modifying the pressure. The posture of the patient must be considered as of some importance, as a difference of 10 to 15 mm. is found between the recumbent and the upright position, so that in making estimations a rule should be followed always to have the patient in the same position. Most of our readings with the Riva Rocci apparatus have been taken with the arm relaxed and the patient in the recumbent position. This avoids not only the effect of grav-

ity but, as pointed out by Goldwater¹⁰ the arterial system is subject to reflex variations which will alter the arterial tension, but, as he also points out, by following a routine method in our estimations we may overlook these changes caused by different postures.

There is some evidence to show that the pressure as given by the various instruments is higher on the right side if the person is right-handed, while if he is left-handed the pressure is higher on the left. Jellinek¹¹ examined 532 healthy soldiers in this respect and found such a condition present in many cases. Hecht and Langstein¹² in 63 cases found that in right-handed persons the tension was 5 to 20 mm. higher than on the opposite side, or if left-handed, it was higher on that side. Contrary to these results are those of Goldwater¹⁰ who could find no rule of difference between the two sides. Our results, though few in number, agree with his; while in some cases we found slight differences, yet we could not see that there was any definite rule in the matter. From theoretical reasoning such a condition should not exist, as it is well known that the pressure in all the large arteries is practically the same when the influence of gravity is excluded. The subject is of practical interest as well as theoretical, because differences between the two sides may, if found, be of some aid in the diagnosis of an aortic aneurism or mediastinal tumor. Other factors which must be considered but which require no lengthy discussion are exertion and psychical influences. It is recognized by all that exercise causes some change in the blood pressure. The influence of the mind, such as mental effort or excitement, is known to raise the pressure, showing that observations should be made with as little disturbance to the patient, physical or mental, as is possible.

What, then, may be considered a normal blood pressure in an individual? The answers to this question are many, making the literature of blood pressure very confusing, especially on first glance. Further study of the subject, however, seems to show that there is not as much diversity about the normal as at first appears and we might add that the small differences we do find between the machines appear to lose some of their importance when we consider the number of factors that enter into our estimations to change them. Considering then, first, Gärtner's tonometer we find the standard for the normal adult, as given by Gärtner himself, to range from 100 to 130 mm. Hg. Grebner¹³ gives 110 to 130 mm. as a standard, while Weiss,¹⁴ with the same instrument considers 90 to 130 mm. as normal for men and 80 to 100 for women. For this apparatus, then, we may take the figures of Gärtner as being approximately normal.

With the Riva Rocci sphygmomanometer Gumprecht,⁸ using the narrow cuff (4 cm.) gives the normal for children as 90 to 110 mm. Hg.; for adult men 140 mm.; for women 120 mm.; and

for old and hard working men he considers readings of 160 to 200 to be within the normal. Hensen² gives a rather wide range to the normal limits for adults under 30, i.e., 100 to 160 mm. Hg. In our work we have adopted Gumprecht's standard, realizing at the same time that the narrow band used (4.5 cm.)* gives readings that are a little too high. Referring to the high pressures found in old and hard-working men, Gumprecht⁸ says that among these laborers he has found them to be common and that if these men are confined to bed in a hospital for a time, the pressure rapidly falls. Cook and Briggs¹ say that with increasing age there is a rise in blood pressure which runs parallel with, if it does not depend upon, changes in the vessels.

A question might arise with the Riva Rocci type of instrument whether the finger is delicate enough to register the earliest return of the pulse, or whether some form of apparatus could not be devised which might give more accurate results. Grödel and Kisch⁷ investigated this subject and on comparative readings they obtained closer results with the finger than with Gärtner's pulskontroller, Oehmke's turgoskop, or Jaquet's sphygmograph, so they concluded that the finger is more accurate than any of these instruments.

In the observations we have made upon patients in the wards of the University Hospital, almost all of our readings, as above stated, were made with the patients in the recumbent position, and with as little disturbance to the patient as possible. The arm was bared and we took a number of readings to avoid errors, whether caused by physical or mental effort. All of our readings were made in the morning when, as has been shown by several observers, the pressure is lowest, there being a rise of 10 or 15 mm. during the afternoon. We have in very many patients made daily readings over considerable lengths of time and in some instances have been able to follow the changes in condition by variations in the arterial tension. In studying the cases in this way we have become very much impressed by the fact that arterial tension in both health and disease is a fairly constant quantity, for we were able many times to get readings on successive days that would vary only a few mm. On the other hand, as has been pointed out by Gumprecht,⁸ after we have obtained these uniform readings for a time, we may suddenly find a variation of 20-30 mm. Hg. and may not be able to account for it in any way. These variations are usually greater the higher the pressure.

The pathological condition which seems perhaps more than any other to affect arterial tension is a diseased condition of the kidneys. Very few cases of acute nephritis are reported in the literature. Weiss¹⁴ says that in recent nephritides of short duration he found normal or sub-

*In our work we have used Cook's modification of the Riva Rocci sphygmomanometer.

normal pressures. He cites a case of acute hemorrhagic nephritis with no accentuation of the aortic second sound in which pressures of 90 and 66 mm. were recorded with the Gärtner tonometer. Carter,¹² using the Hill-Barnard apparatus found in his cases that those which showed no complication other than a mild degree of sclerosis gave an average increase of tension of 7 to 10 mm. Hg.; with an increase in the amount of albumin he observed an increase in pressure. Orr,¹³ of Montreal, reported seven cases of acute nephritis, three showing high pressures. He used the Gärtner apparatus. We were able to make observations upon two interesting cases of acute parenchymatous nephritis. The first patient was a boy, aged fifteen years who, while performing the duties of orderly in the hospital, was being treated for a fibroma of the nasopharynx. He was suddenly attacked with almost complete anuria and a typical case of acute nephritis followed. The urine at all times contained a large amount of albumin, which early in the disease formed a solid coagulum on heating in a test tube. The sediment showed very large numbers of all kinds of casts. At this time his arterial tension registered 177 mm. with no accentuation of the aortic second sound and the heart apex in the normal position. Under treatment it decreased so that for a period of two weeks it varied between 168 and 170 mm. During this time the second aortic became accentuated, the apex remaining in the normal position. At the end of this time symptoms of uremia appeared and the sphygmomanometer showed a pressure of 187. On the day following this reading the patient felt better and examination showed a pressure of 170, but for the next week it varied between 175 and 177. At this time symptoms of uremia again appeared and after three convulsions the pressure was 192. For the next two days the patient was very weak and exhausted and had a pressure of only 155 mm. Hg. During the next week the readings varied from 166 to 176 at the end of which time exitus occurred very unexpectedly from uremic convulsions. Our second case was one of acute parenchymatous nephritis occurring during the course of a very severe attack of typhoid fever. No increase in pulse tension took place; on the contrary, there was a steady decrease following the course of the fever, the pressure becoming subnormal toward the end. Four days before death a reading of 58 mm. Hg. was obtained. The clinical diagnosis in this case was confirmed by autopsy.

In chronic interstitial nephritis the universal clinical observations have been confirmed by the sphygmomanometer. All workers on the subject report finding in this disease high pressures. Weiss¹⁴ considers high pressure the rule in chronic parenchymatous, as well as interstitial, nephritis, in cases where there is hypertrophy of the left ventricle with accentuation of the second aortic sound. Hensen⁵ reports marked and

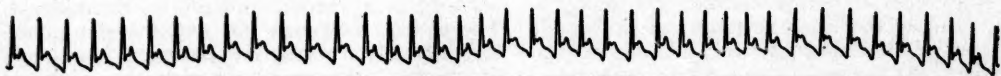
fairly constant elevation of pressure in fifteen cases, all being above 175 mm. Hg. with one exception (145 mm.), and in ten cases readings of 200 and over were recorded. Gumprecht³ gives pressure of 260 and 270 mm. Hg. in contracted kidney. Both Hensen and Gumprecht used the Riva Rocci apparatus. Czyhlarz,¹⁵ though preceded by the writers quoted above, claimed the distinction of being the first to report high pressures in chronic nephritis. Using the Gärtner apparatus, he gives his results in 12 cases, the readings being high (210 to 225 mm. Hg.) on admission to the hospital but falling gradually under rest in bed and a strict milk diet. In 19 cases reported by Orr¹³ the average pressure was 208.5 mm. Hg., the highest reading being 260. Jackson¹⁶ made observations upon cases in which decapsulation of the kidneys was performed. In five of six cases he found a rise in blood pressure even with marked improvement. In one case the pressure was 125 mm. (Gärtner) at operation. At the end of two weeks it had risen to 210 mm. Hg. Digitalis was now administered because of failing pulse and the pressure took a most unexpected fall to 130 mm. As the condition of the patient improved, the arterial pressure again rose and was 190 mm. three months after the operation. In a patient examined by us, etherization had lighted up a chronic process in the kidneys. The patient, a woman just past the climacteric, had been given nitroglycerine every four hours for a day previous to entering the clinic, at which time (10:30 A.M.) her blood pressure was 158 mm. In the afternoon (3 P.M.) after a hot air bath, during which the patient perspired freely, her pressure fell to 150 but at 6:45 P.M. it had gone up to 178 mm. During the following days the patient improved, her pressure decreased to 150 and she was finally discharged. In the parenchymatous form of chronic nephritis Hensen⁵ examined eight cases and reported the following pressures: 135, 160, 130 to 155, 130, 142, 120, 115, 155. We had a case of this kind in which the pressure varied from 166 to 182 mm. The diagnosis was, however, based purely on clinical manifestations, together with the typical findings in the urine. Hypertrophy of the heart was not present. An interesting observation made by Vickery¹⁷ on two adolescents with constant albuminuria, but without any casts, showed that both had a low tension as opposed to the hypertension of nephritis. In cyclic albuminuria Erlanger and Hooker¹⁸ have shown that an increase in pulse pressure is accompanied by an increase in amount of urine but with a diminution in the amount of albumin.

To summarize the effect of renal disease on pulse tension, it may be said that an acute inflammation or degeneration may or may not raise the pressure, but that a chronic interstitial nephritis practically without exception causes an increase, which, if it terminates in uremia, may give still higher readings. As the uremic symp-

toms disappear, the pressure becomes lower, as shown in the cases of Gross²² and in our own cases. Chronic parenchymatous nephritis probably does not cause elevation of pressure as a rule.

In chronic valvular disease of the heart, results, which in the present state of our knowledge appear anomalous, have been obtained. Whereas in chronic interstitial nephritis, as we have just shown, one may expect to find high pressures, there is a striking lack of uniformity in chronic endocarditis, as Weiss¹⁴ pointed out. Goldwater¹⁰ remarks, "Frequent and forcible cardiac contraction is recognized as one of the chief elements in the production of a high-tension pulse; and hence it is very easy to say that in valvular disease tension is high in proportion to the degree of compensatory hypertrophy and that in uncompensated cases pressure is low. But there has been no satisfactory experimental demonstration of such a rule." Our own cases offer strong clinical evidence against this supposition, as we shall presently show. In the cases of mitral regurgitation the same author found pressures below the normal, ranging from 80 to 106, exclusive of one case which had a pressure of 128 and another, mitral in-

ively. We obtained, as did Hensen, the lowest pressure, 133 mm. Hg., in a recent case in which compensation was good and hypertrophy had not taken place. The highest pressures were recorded in a case with incompensation in which the readings varied from 186 to 222. Moderate sclerosis existed. Incompensation also was present in the case in which the average pressure was 151, while in the remaining case the pressure of 164 mm. existed with fair compensation. In two cases of combined mitral and aortic insufficiency the pressure averaged 138 and 170, incompensation being present in each instance. In the latter a pressure of 182 on admission fell to 120 under the influence of rest in bed and liquid diet. The high pressures obtained in some cases of incompensation bear directly upon the statement of Goldwater, quoted here. It should be added that the arteries, with the exception just noted, were palpably thickened in none of these cases. In mitral insufficiency we are unable to agree with the findings of some observers. In one case, that of an athlete intending to enter the Navy, who was examined by one of us, characteristic signs of mitral regurgitation were found. The patient had never complained of cardiac symptoms and, in fact, sup-



Dicrotic pulse; systolic pressure [Riva, Rocci-Cook] 194 mm. Hg. in a case of mitral insufficiency with good compensation.

sufficiency and aortic insufficiency and stenosis, in which the pressure varied between 138 and 148. Hensen² had fifteen cases of mitral insufficiency with practically normal pressures. He obtained the same results in mitral stenosis. Orr¹⁸ reports eight cases of mitral stenosis, six being normal; fourteen of mitral stenosis and regurgitation, eleven being normal. Carter¹⁸ reports low (diastolic) pressures in aortic regurgitation. Norris²¹ found normal pressures in mitral insufficiency to be the rule, with an occasional subnormal pressure and more rarely one above normal. In stenosis of the mitral orifice he obtained somewhat higher values than for insufficiency. In aortic regurgitation he stated that the systolic pressure is high when compensation is good. Hensen² says that high pressure is the rule in this lesion (15 cases), though sudden variations are both greater and more frequent than in health. According to Vickery¹⁹ all varieties of valvular lesions may show high pressures, but the majority of those with very high tension were cases in which compensation was broken. Our results have been comparable in a way to those of the last named author. In four cases of aortic insufficiency the pressure averaged 198, 151, 133 and 164 respec-

posed his heart to be normal. His pressure, with full compensation and moderate hypertrophy, was 195 mm. Hg. This seemed incredible, for previous to the pressure determination we had noted dicrotism of the pulse, which was proven to be present by sphygmographic tracing. In another case of mitral insufficiency with broken compensation—marked dyspnea and cyanosis, with edema of the extremities—the pressure varied from 120 to 127. In a third case to which we may call attention, readings of 125 to 159 were obtained, the average being 141. The case was complicated with pulmonary tuberculosis and two points of interest may be brought out in connection with it; first, a fall in pressure from 141 to 129 following hemoptysis in which about five ounces of blood were lost; two days later the tension had reached 159; second, palpable dicrotism was determined with a pressure of 145 mm. In our remaining case, that of a boy aged four years, with compensation the pressure averaged 116. In one case of combined stenosis and insufficiency of the mitral valve, the pressure averaged 121. In a case of pure mitral stenosis a pressure of 137 mm. was found, compensation being good.

We offer no explanation at present for the

findings which we have obtained in these cardiac cases. It should be remembered, however, that our observations record simply the maximum or systolic pressure. It is particularly important not to lose sight of this fact in connection with the cases of aortic insufficiency. It seems highly probable to us that considerable advance may be made in the study of this particular group of cases, not to mention others, by determinations of diastolic as well as systolic pressures, a point upon which we are at present engaged.

Next to nephritis, there is probably no disease which excites greater interest in connection with observation of arterial tension than exophthalmic goitre. In seven cases examined by Gross²² with the apparatus of Riva Rocci an increase of arterial pressure was found almost without exception. At times he was able to show that an increase in pressure was synchronous with increased frequency of the pulse. Orr¹⁸ obtained normal pressures in two cases. Jackson¹⁸ recorded pressures of 120 to 160 mm. Hg. All of his patients were females. He followed the cases for two years and no diminution in pressure accompanied improvement in the condition of the patients; in fact, in those without symptoms he found the pressure increased. In the main our results are similar to those of Gross and Jackson. Our series consists of eight cases, two males and six females. In the males the pressures averaged 164 mm. and 153 mm. Hg. respectively. In the female patients the pressures were on the whole somewhat lower, half of them being normal. With two exceptions all of our patients had well developed cases with the appearance of the secondary manifestations. Of the two, one has had the disease for about two years, and the pressure at the end of a year of teaching was 161 mm. Hg. Her symptoms were mild. The second case first developed symptoms of Basedow's disease about six years ago, though at present, after a recent pregnancy which went to full term, she shows little evidence of the disease; the pressure was 133. In three of the remaining four cases the pressures averaged 179, 135 and 132 (the last with an arm band 15 cm. wide) respectively, the eighth case showing variations from 112 on admission, when the symptoms were most severe, to 138. This patient gained rapidly in weight and there was marked improvement in all symptoms. About five weeks after admission the pressure rose to its maximum, 138, a week later it was 119, at the end of seven weeks 131, and when the patient was discharged nine weeks after entering the clinic, her pressure registered 116 mm. Hg. The cause of the usual high pressure is not evident. None of the patients showed sclerosis of the arteries, except one of the men (pressure 164) in whom a slight thickening of the radial existed. In the two cases in which the highest pressures were obtained, the evidences of cardiac hypertrophy were most plain. It cannot

be stated, however, whether the hypertrophy is the cause of the high pressure or whether the converse is true. The latter seems the more likely. Again it might be supposed that the elevation in tension is in some way related to hypersecretion of the thyroid; this view appears to be untenable, for Vamossy and Vas²³ and Roos²⁴ found no rise in blood pressure after administration of iodothylin. Among our cases is one of myxedema bearing upon this point. This patient's pressure, previous to the administration of thyroid extract was 166 mm. Hg. Since beginning the treatment, the patient has received 1,095 grains of thyroid extract in seven weeks and yet the pressure at the end of that time registered 150 mm. Hg. That vasomotor action may explain the alterations in tension seen in exophthalmic goiter, at least in part, seems not improbable.

In anemia, whether primary or secondary, the earlier work has shown that the pressure is lowered. The work of Orr is an exception as he reports on six cases, all with normal readings. In our series of eleven cases of pernicious anemia we had only three which showed a normal tension; all of the rest being subnormal, one very markedly so, having a pressure of only 87 with a mild sclerosis of the arteries. Another case with very marked sclerosis showed a pressure of 98. The highest reading we obtained in this class of cases was 152, the patient having very marked thickening of the arterial walls. The average tension of the whole series of cases was 120.

One of the most important fields for blood pressure estimations is without doubt in typhoid fever. Carter, Orr, Norris, Crile and Gumprecht all report that in this disease there is a tendency toward a lowered pressure. Vickery, however, cites the case of a woman in whose urine no casts were found, but who had a pressure of 152. He also mentions three other cases, one having chronic nephritis, all with a pressure of over 160. Our cases, five in number, with only one exception showed a lowered pulse tension. The readings from day to day were fairly uniform in most cases but some rather large variations, even as high as 20 mm. Hg. were found. In general, it may be said, the readings averaged lower as the disease progressed. In one very severe case (mentioned above), which later terminated fatally, the patient suffering a relapse, with intestinal hemorrhages, nephritis, a dilated heart and pneumopnea as complications, we obtained during the latter days of his life the lowest readings we have found in any case, a pressure of 58 mm. being found at one time, four days before exitus. In perforation or in the stage of peritoneal irritation Crile²⁵ and Briggs²⁶ have reported a sudden rise in arterial tension. If further work confirms their observations, the changes of blood pressure will be a very great aid in making a diagnosis of this complication and it seems to offer one of the

most important and promising fields for blood pressure work. As will be gathered from the statement in regard to Vickery's cases, we cannot count on a subnormal pressure in typhoid and it is necessary to make repeated observations upon each case during the course of the disease to ascertain the average height

The rôle which arteriosclerosis plays in the production of high arterial tension has probably been much exaggerated. Von Basch²⁷ showed, in some experimental work performed on fresh cadavers, that it required about 1 to 3 mm. Hg. to bring about collapse of the wall in medium-sized normal arteries, while in those which pre-

Disease.	Sclerosis.	Av. Pressure in mm. Hg.	Remarks.
Proctitis	none	126	
Senility (age eighty-four years)....	slight	184	Slight gastric symptoms.
Cyst of broad ligament	none	135	Before tapping.
Acute artic. rheumatism	none	111	Three weeks later, 158; heart negative.
Acute artic. rheumatism	none	133	Aortic diastolic murmur.
Gonorrheal arthritis	none	112	
Arthritis and mitral insufficiency (age four years)	none	116	Heart lesion chronic; compensated.
Arthritis deformans	moderate	162	
Tuberculosis, lungs	none	131	No fever, early stage.
Tuberculosis, lungs	slight	108	Hectic; cavity.
Tuberculosis, peritoneum	moderate	150	Before withdrawing fluid.
Tuberculosis, pleurisy	none	114	Temperature irreg.
Tuberculosis, pleurisy	none	107	Hectic.
Tuberculosis, lungs	none	124	Early stage.
Adhesive pleuritis	none	132	Irreg. low fever.
Neurasthenia	rather marked	147	
Neurasthenia	none	213	Enormous panniculus on arms.
Hysteria, enteroptosis	none	123	
Cardiac arrhythmia (neurotic)	none	134	
Locomotor ataxia	moderate	112	During gastric crisis, 118 and 110.
Cerebellar tumor	slight	134	Slow growing tumor.
Syphilis of brain	moderate	155	Hemiplegia.
Angioneurotic edema	none	133	
Hypochondriasis, chr. gastritis	?	112	
Ulcer of stomach	none	167	
Ulcer of stomach	moderate	163	
Dilatation of stomach	none	88	Benign.
Dilatation of stomach	none	130	Benign.
Chronic gastritis, (morphinism)....	slight	128	
Cancer of esophagus	none	134	
Amoebic dysentery	none	152	
Amoebic dysentery	none	113	Also ancylostomiasis.
Perivesical abscess	none	128	Fever.
Chr. jaundice	slight	167	Cause not clear.
Chr. jaundice	rather marked	163	Malignant.
Diabetes, mellitus	slight	198	Large arm.
Diabetes, insipidus	moderate	113	Syphilis.
Aneurism, thoracic	moderate	r. arm 140 l. arm 138 r. arm 175 l. arm 204	Never a marked difference on the two sides.
Aneurism, thoracic	moderate		
Bradycardia	very marked	172	Confined to bed.
Erysipelas	none	117	Pulse 18 to the minute.
Influenza	none	138	Fever.
Influenza	none	134	Mild attack.
Influenza	none	122	Mild attack.
Secondary anemia	marked	120	Mild attack.
Lymphosarcoma	none	l. arm 140 r. arm 126	Dulness under upper end of sternum.

for that individual. As some one has pointed out, the important point is not the height of the curve from the base line but the change in direction of the curve. As no case of perforation occurred in our small series, we are unable to give any additional data upon this question.

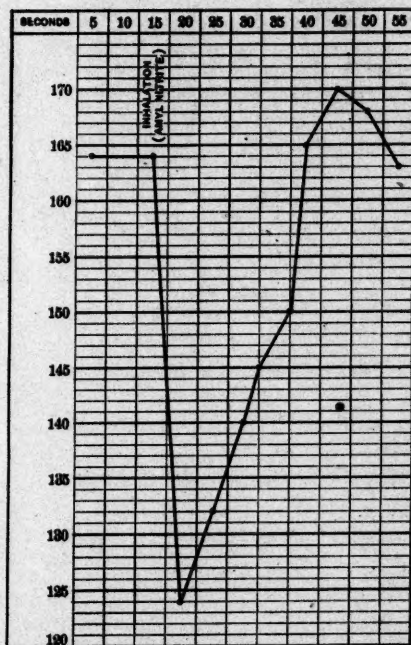
sented the most marked sclerosis, 5 mm. Hg. sufficed to produce the same result. Weiss²⁴ looks upon arteriosclerosis as a cause of high arterial tension, but considers the heart as the chief factor in bringing this about. He reports cases of marked sclerosis with hypertrophy of the left ventricle in which, the heart being com-

petent, high pressures are obtained, whereas in cases with the same apparent degree of sclerotic change in the arteries, but with weak heart action he finds low (subnormal) pressures. Hensen,² in his investigations, found high pressure to be the rule. In nineteen cases of sclerosis of the arteries of moderate degree he found the pressures, with one exception, to be above 155, while with marked grades of sclerosis the blood pressure was 172 or more in all but one of eight cases. Orr¹⁸ examined twenty-seven cases, the highest pressure being 210 mm. Hg.; in sixteen cases the pressure registered 150 mm. or over; in four cases from 130 to 145; in three cases from 110 to 135; in four the pressure was subnormal. Carter¹⁸ says that slight and moderate degrees of arteriosclerosis cause very little departure from the normal pressure and that it is only with marked sclerosis that we obtain any considerable increase of tension. Norris²¹ does not consider sclerosis of the arteries a very important factor in influencing the blood pressure, for he found normal pressure in some cases with marked thickening. Goldwater's¹⁹ results show wide variations in the different cases. One case of marked sclerosis is reported with a pressure of 80 to 82 mm.; another, in which renal disease coexisted, had a pressure of 160 to 174, though it is impossible in this case, it would seem, to ascribe the high tension solely to the condition of the arteries. This author agrees with Weiss in looking upon the heart as the most important factor in determining the height of arterial tension. Jackson¹⁸ says, "We know . . . that in arteriosclerosis the blood pressure is high," but that this statement needs qualifying is shown by the work of Weiss, Orr, Norris and Goldwater, as well as by our own. One of our most marked cases of sclerosis occurred in the patient with pernicious anemia, referred to above, in whom a pressure of 98 mm. Hg. was found. From our rather small number of cases, we believe that the pressures found in arteriosclerosis are influenced little by the condition of the arterial wall, but rather are dependent upon not only the heart but also accompanying conditions, possibly the result of disturbances of metabolism, which are as yet little understood.

In a subject which is in its infancy, as is the case in the determination of blood pressure, it is important to obtain numerous estimations in various diseased conditions. Although our remaining cases are not sufficient in number to warrant their separate consideration, we feel that they may ultimately be of some value, when taken in conjunction with the results of others. Therefore, the foregoing table of blood pressure in miscellaneous diseases is given.

Testing the effect of certain drugs upon the arterial tension is another important field for the use of the sphygmomanometer. Some work has been done along this line, as with digitalis for example. We have not thus far attempted

to study this subject, but consider a few observations which we have made upon the effect of amyl nitrite of sufficient interest to make a brief report justifiable, especially in view of the findings of Weiss.¹⁴ This author reports an increase in arterial tension of 10 to 20 mm. Hg. after inhalations of amyl nitrite, and cites the following cases: (1) Dr. Robert R. Pressure (Gärtner) 140 mm. Inhalation of two drops of amyl nitrite; two minutes later, pressure registered 150 mm.; three minutes later, 140 mm. (2) Johann K. Pressure 140 mm. Hg. Inhalation of two drops of amyl nitrite; one minute later, 160 mm.; after five minutes, 140 mm. In our observations upon the effect of this drug on arterial pressure we have repeatedly and without exception found a very prompt, though



Showing effect of amyl nitrite upon blood pressure.

extremely transient, decrease in the systolic pressure amounting to as much as 43 mm. Hg. in the most pronounced cases. The accompanying chart will serve to illustrate this fact. It will be noted that within a minute a sudden fall in arterial tension occurs, with a return to the former level. We explain the results obtained by Weiss by a failure to take the pressure immediately after the inhalations. With the Gärtner tonometer it is manifestly impossible to take consecutive readings upon the same patient as rapidly as with the Riva Rocci sphygmomanometer and even with the latter the rapidity required to register the extremely sudden variations in pressure produced by amyl nitrite gives rise to certain inaccuracies, which, however,

amount to no more than a few millimeters mercury, in all probability. Simultaneously with the fall in pressure, flushing of the patient's skin occurred.

In conclusion, we can only urge the necessity for a more widespread use of the sphygmomanometer, with the publication of results. The instruments are too little employed by those in active practice, not to mention hospital workers, and the results obtained from them too frequently underestimated. It would be folly to say that every case, to be successfully treated, should have blood pressure determinations made, but that there are some cases—and their number will doubtless increase—in which the treatment can be most successfully carried out when we know accurately the height of the arterial tension, is a statement which needs no amplification. We cannot refrain from emphasizing the necessity upon those who use the Riva Rocci type of apparatus for obtaining a broad cuff, one 15 cm. wide.

To Dr. Dock we wish to express our thanks for many valuable suggestions and for his lively interest in the work.

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- Note. Janeway's valuable book on Blood Pressure appeared too late to be of service in the preparation of this article.

MEDICAL PROGRESS.

PEDIATRICS.

The Physiology of Nursing.—In the case of an ideal breast, during the first few minutes of a meal, every suck is followed by an act of swallowing, according to J. SÜSSWEIN (*Arch. f. Kinderheilk.*, Vol. 40, Nos. 1 and 2). The greater half of the meal is finished in the first five minutes. If the child drinks with many interruptions and if the act of swallowing occurs but seldom, then the breast is unsuitable or insufficient for the child. In judging of the suffi-

ciency of the breast, weighing the child is a still better help than the above observations.

The Value of the Finding of Diphtheria Bacilli in Nuralings.—A thought frequently arises in the mind of the practitioner that perhaps, after all, a case from which a culture has been taken with a positive finding, is not one of diphtheria. L. SCHAPS (*Arch. f. Kinderheilk.*, Vol. 40, Nos. 1 and 2) agrees with Ballin that the finding of the bacillus alone gives no assurance that diphtheria is present, that rather the greater emphasis should be placed on the clinical impression. Bacteriology can furnish an aid to the latter. In supporting his contention the author reports his interesting experience in the Infants' Hospital of Dresden. Nine cases of rhinitis simultaneously presented themselves among his charges, and owing to certain repairs that were going on in the hospital, it was impossible to isolate them. There was a serosanguinolent secretion from the nostrils and excoriations of the upper lip. There was no temperature, but all the cultures gave a positive report. From 21 other and normal cases in the hospital cultures were taken, and some of these also revealed the presence of diphtheria bacilli, although there were absolutely no clinical symptoms of diphtheria. None of the patients at any time had fever, in spite of the positive finding, in one of which the bacilli proved to be virulent on inoculation into animals. No membrane was discovered either in the nose or elsewhere. There were no pharyngeal or laryngeal symptoms, no nephritis, or nervous manifestations. All the cases received antitoxin, but it had no effect upon the rhinitis. The conclusion is that no diphtheria was present. The diphtheria bacilli in the above cases played simply the rôle of relatively harmless saprophytes, which, however, may at times give rise to a genuine diphtheria.

Spontaneous Rupture of the Heart in Infants.—William Harvey was the first to observe a case of rupture of the heart, and at no time has a case been seen in a child less than one year old until recently, when a case came under the observation of L. SCHAPS (*Arch. f. Kinderheilk.*, Vol. 40, Nos. 1 and 2). The most prominent cause of cardiac rupture is arteriosclerosis, but in this case it was a septic embolus that lodged in the heart muscle. This case is of considerable interest, as it furnishes a new cause to that long list of causes of sudden death in infants. A child of four months was brought to the hospital, badly nourished and presenting small, discrete, subcutaneous abscesses in the back, head, and extremities; there was a maculopapular exanthem, the bridge of the nose was depressed, the child had snuffles and excoriations about the nose. The spleen and liver were enlarged and there were small papules about the arms. A swelling of the lower end of the left forearm proved on radiography to be a swelling of the epiphysis of the radius. The case was clearly one of congenital syphilis and was given inunctions of one-half gram of ung. cin. pro die, and was nourished by means of expressed woman's milk. Four days later there occurred a sudden rise of temperature, the next day a few fine râles were heard over the pericardium and in the afternoon, one-half hour after feeding, the child died suddenly. At autopsy the pericardium was found filled with thin blood and dark necrotic fragments. There was a fibrinous exudate over the pericardium. In the middle of the left ventricle there was a perforation 3 mm. in diameter, in the neighborhood of which the heart muscle was soft and friable. Here was an abscess, ½ cm. long in the wall of the left ventricle, sharply

circumscribed; dark red in the periphery and yellow in the center. There was also a small abscess near the apex of the heart. Microscopical examination showed that the muscle in the neighborhood of the rent was quite necrotic and the nuclei did not take up the stain. Staphylococci were found. The case was one of staphylococcus sepsis (independent of lues), originating in the subcutaneous abscesses. The frequent occurrence of septic processes in infants originating like the above must be borne in mind.

The Passage of Bromide into Woman's Milk.—If bromide be given to the mother in customary doses it passes into the milk, but only in traces, according to H. ROSENHAUPT (*Arch. f. Kinderheilk.*, Vol. 40, Nos. 1 and 2). It can thus have no therapeutic value if administered by this route. Yet the possibility that pathological processes in infants may come from the administration of bromide to the mother, is suggested by the case of acne in an infant immediately disappearing upon the mother ceasing to take bromide.

Phosphorus in the Milk.—Only an increased casein-content, according to A. SCHLOSSMANN (*Arch. f. Kinderheilk.*, Vol. 40, Nos. 1 and 2), has the effect of increasing the amount of phosphorus in the milk. The prolongation of lactation, menstruation or fever has no effect on the amount of phosphorus. A part of this is held in organic union in the milk, particularly in casein; the content in other nucleones and in lecithin has not been thoroughly worked out.

Intestinal Tuberculosis in Children.—A type of tuberculosis occurring among the children of coal miners in Germany is described by R. RICHTER (*Berl. klin. Woch.*, November 7, 1904). It affects principally the intestinal lymph glands, and though rarely fatal, may constitute a grave illness. The children become emaciated, pale, suffer from abdominal pain and tenderness around the umbilicus, headache, insomnia and slight rise of temperature in the evening. The cervical and submaxillary glands are frequently swollen. The disease may progress very rapidly for a time and then take on a chronic type, which is more apt to be prolonged in the older children. After the subjective symptoms disappear, anemia, and general weakness persist for a considerable period. The author describes the disease to the fact that the local milk supply is of very poor quality and the hygienic conditions are also bad. In view of the fact that Behring states that tuberculous infection in childhood protects against reinfection later in life, it is interesting to note that tuberculosis is very rare among the adult inhabitants of the district.

History of Pediatrics.—This subject, together with its relation to other sciences, was ably presented at the recent Congress in St. Louis by A. JACOBI (*Am. Med.*, November 5, 1904), and the conclusions at the end of the address are well worthy of note. He states that "pedology is the science of the young. The young are the future makers and owners of the world. Their physical, intellectual and moral condition will decide whether the globe will be more Cossack or Republican, more criminal or more righteous. For their education and training and capabilities, the physician, mainly the pediatricist, as the representative of medical science and art, should become responsible. Medicine is concerned with the new individual before he is born, while he is being born and after. Heredity and the health of the pregnant mother are the physician's concern. The regulation of labor laws, factory legislation, and the prohibition of marriages of epileptics, syphilitics and

criminals, are some of his preventive measures to secure a promising progeny. To him belongs the watchful care of the production and distribution of foods. He has to guard the school period from sanitary and educational points of view, for heart and muscle and brain are of equal value. . . . And in the near future the pediatricist is to set in and control school boards, the health departments and the legislature."

The Lymphoid Affections of the Upper Air Tract of Children.—W. F. CHAPPELL (*Med. Record*, Nov. 12, 1904) describes the anatomy, functions and diseases of the pharyngeal and faucial tonsils. Adenoids may be hard or soft, and often decrease in size between two examinations, owing to change in the patient's systemic condition. The relative degree of development or dimensions of the nasopharynx is an important factor in determining the danger line of the pharyngeal tonsil, as is also the temperament of the child. An acute pharyngeal tonsillitis of a catarrhal nature is quite common in small children, without any other part of the lymphoid ring being affected. It is usually the result of a cold, and attacks the vertical clefts of the gland. The chief symptoms are high fever, the temperature rising to 105° F., extreme prostration, and some enlargement and tenderness of the posterior cervical glands. He believes that an affection of the pharyngeal tonsil causes more systemic disturbance than similar affections of any other lymphoid tissue. Conditions requiring differential diagnosis from adenoids are (1) Lymphatism, (2) syphilitic and gonorrheal rhinitis, (3) congenital occlusion of the nares, (4) digestive disturbances, (5) congenitally high-arched palate, (6) small or occluded nostril, (7) unusually small postnasal space, (8) anterior projection of the bodies of the cervical vertebrae, (9) some malformations of the soft palate, and (10) hypertrophy of the tongue. In deciding whether the faucial tonsils are sufficiently enlarged to require removal, care is needed not to overlook so-called buried tonsils which lie hidden between the lateral pharyngeal wall behind and the opercular fold in front, and extend high up into the lateral pharyngeal vault. This is sometimes a more dangerous condition than the marked hypertrophy of the gland which occupies a large part of the pharyngeal space. If small, adenoids and tonsils not causing symptoms may be treated by non-operative means; but large tonsils and large lymphoid masses in the nasopharynx should be removed, even if they do not produce symptoms. The author prefers to operate at an early hour of the morning, and usually under general anesthesia. Gas and ether is the anesthetic of choice for children over three years old; for younger patients, chloroform may be used to start with, followed by ether. Chloroform alone is considered very unsafe.

OBSTETRICS AND GYNÉCOLOGY.

The Hematom Mole.—Hematoma moles have been considered exceedingly rare, a fact probably dependent upon careless observation or insufficient description. F. J. TAUSSIG (*Am. Jour. Obstet.*, October, 1904) says that they are found most frequently in young women who have born several children. Often there is a tendency to miscarriage. Endometritis is probably a precursor to their formation. Patients usually have a history of "missed abortion." After several months of apparently normal pregnancy the abdomen ceases to enlarge, there may be a slight bloody discharge accompanied by bearing-down pains, but nothing is expelled and the symptoms subside. Later the irregular bleeding continues, becoming more persistent from the sixth to twelfth month. There is rarely any offensive odor

to the discharge. On examination the uterus will usually be found enlarged, not tender and somewhat harder than a pregnant uterus of the third month. A delayed abortion may be differentiated by the presence of fever and an odorous discharge. Hydatid moles may be recognized by the more rapid increase in the size of the uterus, the profuse bleeding and the finding of hydatid formations in the discharge. The irregular shape and the history of menorrhagia will help differentiate a myomatous uterus from a hematoma mole. The prognosis is favorable. The treatment consists in evacuation of the uterus, which can usually be accomplished by cervical and vaginal tamponade. Pathologically the main characteristic feature consists in the presence of an amniotic cavity greatly out of proportion to the embryo and encrouched upon by numerous subchorionic hematomata. Two classes may be distinguished: In one the hematomata are found scattered about the entire surface of the ovum and are polypoid. In the second class the hematomata are limited to the placental site and have broad bases. Examination of the fetuses in these cases has thus far revealed no reason for their premature death. The formation of the mole is explained by an increase in the fetal membranes and amniotic fluid after the death of the fetus in the first or second month. The fluid is subsequently absorbed, the ovum shrinks and by the negative pressure thus produced folds of the membranes arise which became filled with blood from the intervillous spaces. The continued absorption of the fluid together with a stretching of the membranes by the blood clots eventually forms the hematomata. In this process the insertions of the villous stems act as fixed points, the formation of a broad-based or polypoid hematoma depends upon the proximity of the stems to one another.

The Act of Labor Observed on the Isolated Uterus.—Very interesting physiological and pharmacological experiments on the contractions of the uterus are reported by E. M. KURDINOWSKY (*Archiv f. Gyn.*, Vol. 73, No. 2). He removed the uterus of rabbits under ether narcosis, after injecting it from the aorta with Locke's fluid and thus removing all the blood. The uterus, together with the adnexa, was then placed in a special chamber and kept moist with Locke's fluid. It was found that the isolated organ responded to stimuli for two or three days and from these contractions a curve could be constructed. In two cases the author was able to watch the act of labor in a pregnant rabbit uterus from beginning to end. The contractile wave began at the cornua and extended toward the body of the uterus. The result is the gradual separation between the uterine wall and the embryo. After the separation is complete, the embryo is slowly pushed through the horn into the corpus. The same takes place in the other horn and the two fetuses meet in the general cavity. The body of the uterus is then subjected to ring-like contractions which gradually press its contents into the vagina. The broad ligament take an important part in this act and so soon the embryo is in the vagina its action ceases until the second is ready to be expelled. From this it seems quite certain that the uterus can fulfil this expulsive function without the intervention of any stimuli from the central nervous system. Thermic and chemical stimuli strengthen the contraction, but often make them tetanic in character while electric stimuli have apparently little effect. An interesting feature is the part which the broad ligaments take in the process. Ergot was found to affect the uterus in a peripheral manner, and produce contractions inde-

pendent of any contractions of the vessels. Narcotic poisons, such as chloral and alcohol, have little effect. Adrenalin in dilute solution (up to 1:20,000,000) increases the contractions more than the so-called specifics and demands further investigation.

Nephritis in Pregnancy.—Pregnancy occurring in a subject with chronic interstitial nephritis must always be considered a serious complication. These cases rarely terminate in eclampsia but the renal lesions may become so aggravated as to cause uremic poisoning. The most common result of nephritis is seen in the so-called placental red infarcts. G. N. DOBBIN (*Maryl. Med. Jour.*, December, 1904) is of the opinion that these infarcts, through interference with fetal nutrition, are the cause of the high fetal mortality in nephritis, second only to that caused by syphilis. Many theories have been advanced as to the essential nature of the poison giving rise to the toxemia peculiar to pregnancy. The source has been attributed to products of fetal metabolism; inadequacy of the maternal thyroid system; the presence of an organic acid, readily changeable into various compounds which attack the epithelium of the parenchymatous organs. Whatever the cause, it is indicated by urinary changes that can always be recognized. The presence of albumin in the urine and diminished urea excretions, while of prognostic value, should be considered only as adjuncts to the clinical manifestations. The eliminative functions of pregnant patients in whom renal complications are suspected, should be closely observed. Fetal death in cases of interstitial nephritis is common at about the seventh month, hence from the fifth month maternal elimination should be carefully observed and appropriately treated by saline infusion, diuretics, sweats, cathartics and diet, as may be indicated. Cases are on record in which nitrogenous elimination was markedly increased by the use of thyroid extract.

Operative Intervention in Cancers of the Cervix Uteri.—Thus far all bacteriological and pathological researches pertaining to the etiology of cancer have been absolutely negative. Clinically the outlook is less discouraging. In considering operative measures in cancer of the cervix uteri the most encouraging reports come from Germany. The tendency of American opinion is that cancer of the cervix usually comes to the notice of the surgeon when operation is useless. E. A. BALLOCK (*Am. Jour. Obstet.*, December, 1904) explains the difference in results reported here and abroad by the fact that German operators do not draw any sharp distinction between cancer of the cervix and cancer of the body of the uterus, the latter being far less malignant. German surgeons also consider that two years' freedom from recurrence usually means a permanent cure. American surgeons are convinced that any such two- or three-year limit is not justified by after-histories of these cases. English operators, a fair proportion of French and German surgeons and a few Americans favor vaginal hysterectomy. This is the easiest and quickest operation for the disease but the remote results are far from satisfactory. The radical abdominal operation with wide removal of the parametrium and glands together with the upper part of the vagina is by all means the best procedure. Vaginal hysterectomy is of value only as a palliative measure. Starvation of the disease by cutting off its blood supply is a palliative measure worthy of trial and a valuable

addition to the radical abdominal operation. In inoperable cases the judicious use of the actual cautery, zinc chloride, calcium carbide and other caustics may afford marked relief. Early diagnosis is of great importance. Any irregular hemorrhage, at or after the menopause, or any persistent ulceration about the cervix should raise the suspicion of cancer. Any unusual friability or vascularity of the tissue should be regarded with suspicion. In some cases an acrid watery or brownish discharge occurs as a prehemorrhagic symptom. The value of a microscopical tissue examination depends upon the competency of the pathologist. The fact that there will in all probability be recurrences at the site of operation or elsewhere in spite of the utmost care in dissection, tempts the consoling thought that a general disease must have antedated the appearance of the local lesions.

The Effects of Castration on the Phosphorus Content of the Female Organism.—It has been proved that osteomalacia is accompanied by a lack of phosphates in the bones and the observation has also been made that castration has resulted in a cure and the administration of phosphorus is followed by favorable effects in this disease. This has prompted numerous investigations of metabolism, which have also included the changes brought about by castration. The final results have varied greatly. Investigators who have experimented with healthy animals (dogs) have sometimes observed an increase, sometimes a decrease and occasionally no change at all, while those who made their observations in women, the subject of osteomalacia, usually found a diminution in the amount of phosphorus excreted. Their results, however, are not beyond the sphere of doubt. F. HEYMANN (*Archiv f. Gyn.*, Vol. 73, No. 2) now presents the results of his researches made for the purpose of deciding whether any differences existed between healthy individuals, subjected to castration and those which had not been thus treated, with reference to the chemical constitution of their organs. Both classes were selected with regard to equality of race and size, and kept under the same conditions as regards their life and nourishment. The animals employed were rats, as being most suitable on account of their size and ease of procurement. His results are as follows: He is certain that the castration of healthy mammals is not attended by any permanent retention of phosphorus. On the contrary there is apparently a diminution in the phosphorus content of the organism, which decrease seems to involve the soft parts as well as the skeleton. The lecithin is apparently not affected. Heymann accounts for the favorable effects which follow castration in osteomalacia by assuming that in this disease the ovaries are primarily diseased and that the softening of the bones which subsequently occurs, is a secondary trophoneurosis.

Pyemia Treated by the Production of Artificial Suppuration.—Fochier proposed some time ago a plan for the production of local suppuration in cases of general pyemia, for he had observed that in severe cases the general condition improved if local suppuration occurred either as a pelvic abscess, subcutaneous phlegmon, etc. For this purpose he injected turpentine subcutaneously and reported favorable results in six cases. Other observers have tried the method with equal success, others have found it ineffective. BAOSZ (*Deut. med. Woch.*, October 27, 1903, reports a case of puerperal septicemia of four weeks' duration, with septic temperature, a pulse of 140 and great prostration. He injected 5 c.c. of rectified turpentine into the calf of the leg and the temperature began to fall. She kept on improving and on the tenth day there was no longer

any fever and the general condition was better. On the fifth day after the injection, the leg was incised and a quantity of pus evacuated. The suppuration continued, however, and a second incision was found necessary. The wound took a long time to heal and the author is of the opinion that the dose of turpentine injected was larger than really necessary and produced too great a local reaction. The author believes that the good result in this case was due to the method employed.

Benign Character of Chorio-epithelioma.—Although at first regarded as a universally malignant class of neoplasms, it has been found that many cases recover without recurrences after operation. The distinction between the two groups has never been fully determined, however, and an attempt to differentiate them on a histological basis has now been made by D. V. VELITS (*Zeitschr. f. Geb. u. Gyn.*, Vol. 52, No. 2). He reports an advanced case in which a complete cure resulted after total extirpation, and compares his microscopical findings with those cases where after incomplete operation, curettement, or the appearance of vaginal metastases, the patients nevertheless recovered. The author considers these cases as relatively benign. Clinical experience teaches that a chorio-epithelioma together with its metastatic deposits may heal spontaneously. The latter process depends on a necrobiosis, which can be perceived by the naked eye alone in advanced cases. The microscopical picture shows the following:—diminished vitality of the Langhans cells, manifested in the partial or complete absence of mitosis, and the appearance of migrating cells, which are indicative of the dissolution of the syncytium and are the degeneration products of the disintegrating chorio-epithelium as well as of the cystic mole.

Treatment of Complete Rupture of the Uterus.—That the question of the proper treatment of this condition is still open to discussion, is the opinion of R. KÜSTNER (*Deut. med. Woch.*, September 22, 1904). The former idea that laparotomy or vaginal hysterectomy was necessary has been succeeded to some extent by the notion that more conservative measures were indicated. Caution is necessary in drawing conclusions from statistics, for this accident, more than any other must be judged by the merits of each particular case. The writer reports seven cases treated by laparotomy and although only two of his patients recovered, he still expresses himself as in favor of this plan. He advises free incision whether the laparotomy is demanded for the mere checking hemorrhage or not. A careful search for all pools of blood, meconium and liquor amnii in the peritoneal cavity is necessary, especially in the upper parts. The abdominal cavity should not be flushed by any solution. Bleeding points should be controlled by ligature and the rent in the uterine wall sutured. The bladder, if torn, may also be repaired. Hysterectomy can only be done in exceptional cases, as the patients are not in fit condition for this procedure. In some posterior ruptures, it may be better to drain vaginally, instead of suturing the uterus and a large Mikulicz tampon should in all cases lead from the uterine tear out through the abdominal incision.

Spinal Anesthesia in Obstetrics.—Good results have been obtained by A. MARTIN (*Münch. med. Woch.*, October 11, 1904) from the injection of cocaine, preceded by adrenalin, into the subarachnoid space in women about to give birth. The anesthesia frequently lasted up to three hours and not rarely extended as far as the clavicles. After-effects with the exception of vomiting, were not noticed. Hypodermic injections of caffeine have recently been recommended to prevent vomiting, but in the author's hands, they were without effect. It seems that patients weak and advanced in

years, possess a special tolerance for cocaine, so that this may often be substituted to advantage for chloroform. Application of forceps, version and perineal suture can be done without inducing pain but it is undeniable that the contraction of the womb and of the abdominal muscles is somewhat retarded. Involution of the uterus and the formation of milk are not interfered with.

A Case of Quadruplets.—It is rare for the human female to give birth to four children at once. Fothergill gives the ratio as one in 387,000. ANNIE C. GOWDEY (*Lancet*, October, 1904) reports the case of a woman, aged thirty-six years, who, while lifting a heavy weight felt something "snap" inside her. Typical labor pains developed within a few hours. On admission to the St. Pancras Infirmary, she gave the following history: She was pregnant 5½ months and had noticed that she was unusually large; otherwise, she had had no discomfort whatsoever. The physical signs were: The abdomen was greatly distended, the uterus reaching to within three fingerbreadths of the ensiform. The fetal parts were not satisfactorily palpable. The os was dilated and the cord prolapsed. The pains subsided and the next day a hand prolapsed and could not be returned. The child was delivered by the forceps. It weighed one pound, four ounces and survived thirteen hours. Within the next twenty minutes, three other children were expelled. These were all stillborn. The placentae are described as follows: Two were quite separate, the remaining two had coalescing margins with separate chorions to each. There was no post-partem hemorrhage, the recovery of the patient being without incident. Two of the presentations were transverse, one was vertex and the other breech. The presence of the separate chorions indicating the uniovular development of each child is interesting inasmuch as it is the most common mode of development in twin pregnancies but most unusual in multiple pregnancies.

Treatment of Tumors During Pregnancy.—That vaginal removal of tumors may be done as readily during pregnancy as at other times, is the opinion of DUHRSEN (*Deut. med. Woch.*, October 20, 1904), who describes a number of such cases. He considers that the attempt to replace incarcerated ovarian or parovarian cysts during pregnancy, is unsafe with any method of forcible manipulation, with or without anesthesia, and it should never be resorted to on account of the danger of injury to the pedicle with consequent internal hemorrhage. In such cases the proper treatment is vaginal ovariectomy, supplemented if necessary by laparotomy, which if the proper preparations have been made, does not increase the dangers to the patient. During labor, abdominal removal of the tumor is to be preferred only if the genital tract or the contents of the tumor have become infected. During pregnancy, tumors which can be pressed down to the anterior or posterior vaginal vault, should be approached by this means. Those which cannot be reached in this way should be left untouched during pregnancy, provided that they do not increase in size and that the general condition remains good. After the uterus has involuted, vaginal extirpation may also be done. Myomata which block the parturient canal and are not drawn up by the uterine contractions may be excised either by anterior or posterior colpotomy, combined with Cesarean section.

Serum Treatment of Puerperal Fever.—The failure of antiseptic methods in labor cases to be followed by as good results as in other operations, is due, according to E. BUMM (*Berl. klin. Woch.*, Oc-

tober 31, 1904), to the difficulty of carrying out the various details, especially in private practice, rather than to any increase in operative procedures, etc. Surgical operations last a short time as compared with labor cases, and are carried out in suitable quarters as a rule and with skilled assistants while a woman may be in labor for days and subjected to numerous or indiscriminate examinations. The genital region, moreover, is very hard to disinfect properly and germs also find a ready soil in the parturient canal especially after labor. The ideal solution of the problem would be to provide a sufficient number of obstetrical hospitals in which all could be accommodated whose home surroundings militate against surgical cleanliness. Bumm thinks that the general treatment employed in cases of puerperal infection is insufficient and efforts should be made to further develop an antistreptococcus serum. In spite of all its shortcomings he has adhered to this method for ten years with extremely favorable results. He has used various sera, beginning with Marmorek's from the Pasteur Institute, then Merck's, Tavel's, Menzer's, and finally Aronson's. Septic puerperal infection may be divided into the following clinical pictures: (1) The localized streptococcus endometritis, due to infection of puerperal wounds of the vagina and perineum; (2) the extension of the infection along the mucous membrane into the tubes, leading to a septic salpingo-oophoritis and pelvic peritonitis; (3) the extension of the germs into the broad ligament, septic parametritis; (4) extension of the infection over the entire peritoneum, septic puerperal peritonitis; (5) the extension of the infection from the placental site through the venous channels, leading to phlegmasia, pyemia, endocarditis, or septicemia. Fifty-three cases divided among these anatomical and clinical groups were treated with serum injections, with a mortality of 11 per cent. The latter figure, however, is not conclusive, as about 80 per cent. of women who present a streptococcus endometritis, eventually recover. The value of the serum lies in the fact that a more serious class of cases have recovered than would otherwise have been the case. Bumm admits that at present there is no serum which exerts any effect on tissues which have been infected by an invasion of streptococci beyond the original point of entrance. Where there is developed a general peritonitis, parametritis, pyemia, endocarditis, etc., the injection of the serum is ineffectual and useless. On the other hand there is no doubt that where the infection remains localized in the endometrium, or where the streptococci are circulating in the blood in moderate numbers without having produced any lesions in other organs, the administration of the serum will serve to overcome the infection and its use is to be recommended. The comparative harmlessness of the subcutaneous injection prompts him to give the serum whenever the labor has been severe, the placenta adherent, so that it required removal, the liquor amnii decomposed, and fever present during labor,—as a prophylactic measure and he firmly believes that in this way many an infection may be avoided, or if not, at least made much less virulent. He considers Aronson's sera the strongest and best.

Intrapelvic Hematomata.—Subperitoneal hematomata, in which the collection of blood lies beneath the peritoneum, but above the pelvic floor are usually due to incomplete rupture of the uterus or deep cervical tears. In a small number of cases the hemorrhage results from the rupture of vessels within

the broad ligament in the neighborhood of the supravaginal portion of the cervix or about the base of the bladder. A similar condition may follow rupture of a pregnant tube between the folds of the broad ligament. In non-pregnant women sub-peritoneal hematomata may follow injuries to blood vessels in curetting the uterus or removing tumors. In considering intra-pelvic hematomata following labor, J. N. WILLIAMS (*Am. Jour. Obstet.*, October, 1904) thinks the consensus of opinion to be that such an accident does not result from injury of the large vessels, but is due to the tearing through of smaller ones as a result of the tissues of the birth canal being dragged from their attachments by the friction caused by the oncoming presenting part. The symptoms of such an accident are severe pains about the rectum, the absence of any visible lesion, shock, and the high position of the fundus. In most cases the treatment should be expectant, employing a saline infusion if indicated. If the tumor rapidly increases in size and collapse becomes pronounced, laparotomy should be resorted to, and appropriate means adopted for checking the flow of blood.

Papillary Tumors of the Ovaries.—The histological structure of cysts and papillary tumors of the ovary is the same. The presence or absence of a limiting cavity is a temporary and accessory morphological difference. There are two important features which belong to these tumors: ascites and disseminated growths over parietal and visceral peritoneum while the omentum may or may not be infiltrated. T. Pozzi (*Am. Jour. Obstet.*, October, 1904) says that the prognosis in connection with these tumors is often too severe, they are not always malignant and can often be completely removed, even an incomplete operation may be followed by improvement, if not permanent recovery. It is important to make a careful distinction between carcinomatous generalization and simple grafts which result from contact or plain growth upon the peritoneum of detached papillary vegetations of the ovary. This latter process is benign. In the absence of positive symptoms of malignancy (cancerous cachexia or visceral metastasis), the tumors should be treated as benign. The frequency of successive invasion of both ovaries by papillary tumors constitutes indication for removal of the adnexa of both sides, even if the one side appears healthy. In young women only should a conservative operation be performed.

The Electric Treatment of Uterine Myomata.—In spite of the shortcomings of this method, it has been further studied by E. WITTE (*Deut. med. Woch.*, November 3, 1904), who has perfected a method which apparently gives satisfactory results. His plan is to produce firm uterine contractions by strong faradization, with the idea of causing the blood vessels to contract, and thus to check hemorrhage, while at the same time the nutrition of the tumor is interfered with, and it diminishes in size by a process of absorption. He passes one electrode through the cervix into the uterus, while the other is applied to the abdomen. If possible the treatment is continued daily for from twenty to thirty minutes, and the current is used as strong as the patient can stand it. Both the strength of current and the frequency of application must be carefully regulated at the beginning of treatment in order not to overtax the patient. The author has never observed any bad effects from the treatment, and has found that the metrorrhagia is entirely controlled and the tumors are greatly reduced in size.

Rubber Gloves in Manual Extraction of the Placenta.—The comparative results obtained in a series of cases of retention of the placenta treated in the Woman's Hospital at Basel, with or without rubber gloves, are published by WORMSER (*Deut. med. Woch.*, November 3, 1904). The conditions of delivery were practically the same, but in the service of one of the attending obstetricians the gloves were worn and in the service of the other they were omitted. Forty cases were done without gloves, thirty with, and the mortality was nothing. The patients treated with the gloved hands showed less febrile reaction, however, during the puerperium than the others, and the author warmly recommends the gloves for this reason. This is still more advisable in private practice, where there is more chance for infection, and where haste may be necessary on account of the hemorrhage.

Inversion of the Uterus.—The treatment in cases accompanied by necrosis of the inverted part, together with the report of such a case, is discussed by B. M. ANSPACH (*Am. Med.*, November 26, 1904). The patient in question had two labors in which the placenta was delivered with difficulty. Three months after her confinement, a slight irregular hemorrhage from the vagina was noticed, which continued for over six months, after which there was a free flow of blood every ten days. One of these hemorrhages was quite severe, with backache and bearing-down pain, and followed by a very offensive discharge. On examination a spherical mass was made out which filled the vagina, semifluctuating and gangrenous. Under ether the diagnosis was made of complete inversion of the uterus. Removal was indicated, but vaginal hysterectomy was rejected on account of the danger of infection, and the plan of amputating the necrotic mass was adopted. The pedicle of the mass was caught with a large hysterectomy forceps, the tumor being first incised in the middle line in order to avoid a mistake in diagnosis or a knuckle of small intestine which might have been caught in the funnel of the inversion. The necrotic mass was cut away beneath the forceps, which were left in place and then pushed back somewhat and the region packed with gauze. Forceps seemed safer than sutures on account of the danger of infecting the peritoneum. There was left the lower third of the endometrial cavity and the ovaries. The forceps sloughed off on the fifth day and convalescence was uneventful. The inversion probably began during the puerperium and continued until three months later it gave rise to symptoms.

Thrombosis and Embolism in the Puerperium.—This subject has been studied from the material of Leopold's clinic, including 16,000 maternity cases, by A. RICHTER (*Archiv f. Gyn.*, Vol. 74, No. 1). He found 20 instances of embolism, 78 of thrombosis and 18 of puerperal pulmonary affections. Sixty per cent. of the cases of emboli ended fatally with the first attack, in a few instances a milder attack preceded the fatal one. As careful prophylaxis may avoid embolism, it is important to be acquainted with an early symptom which may direct the attention to the existence of a thrombosis. The rise in the maternal pulse, first described by Mahler, was demonstrated by Richter without any doubts, in 63 per cent. of his cases, with some doubts, on account of the presence of fever, in 34 per cent. In the cases of pulmonary embolism it was plainly evident in 42 per cent., but doubtful in 52 per cent. Richter thinks that this rise in pulse rate is more important than other symptoms of hidden thromboses, which are accepted as characteristic, e.g., rise of temperature, variable hyperemia in the affected thigh and the skin of the abdomen, pain in the hip and side. The increased

pulse rate is due to the fact that the necessity for the production of new collateral channels around the obstructed vein brings about increased cardiac resistance and the heart of a pregnant woman, being more or less subject to degeneration, can only accomplish the additional task by an increased number of contractions. Richter thinks that thrombosis in the pelvic veins is less dangerous than that of the lower extremities, because in the latter, larger fatal thrombi may be freed, while in the pelvic veins much smaller thrombi are formed which are caught in the capillaries and collaterals. When these smaller emboli reach the lungs they give rise to sharp pains in the side, which may be followed by pleurisy, pneumonia, bronchitis, or infarct. The prophylaxis when a suspension exists of the presence of a thrombosis, consists of absolute rest and careful nursing, together with bandaging of the varicose extremities.

NEUROLOGY AND PSYCHIATRY.

Intermittent Lameness and Other Symptoms of Peripheral Arterial Disease.—These conditions, which were formerly ascribed to lesions of the peripheral nerves or the spinal cord, are now acknowledged in many instances to be due primarily to disease of the arteries of the extremities, and that nervous lesions, when present, are secondary. The best known effect of peripheral obliterating endarteritis is intermittent lameness, described by Erb as *dysbasia angiosclerotica*, and more common than ordinarily supposed. C. W. Burr (*Am. Med.*, September 17, 1904) reports a fatal case in which gangrene developed but not all cases are as severe as this. The typical case may be described as follows: The patient, while walking, is seized with a pain or numbness, localized or diffuse, in one or both legs, and at the same time there is a feeling of stiffness or even distinct cramp in the calves or thighs. If the patient sits down, relief comes quickly, but very soon after beginning to walk the symptoms return, and soon he is unable to walk at all, on account of the pain and muscular debility. Examination at this time shows that the arteries of the feet, and even the femoral, may be pulseless, their walls are distinctly thickened, and the feet may be warm or cold, cyanosed or normal in color. The attack may vary from several minutes to hours and come on almost always during muscular exertion. The legs are more frequently affected than the arms, and rarely the arm and leg may be seized in a manner resembling transitory cerebral hemiplegia. Glycosuria is a frequent complication, but the one constant symptom in intermittent lameness is chronic arteritis.

The Classification of Hydrocephalus.—Various conditions have been described by different authors as examples of this disease, without, however, bearing any definite relation to one another. There follows consequently confusion as to the different forms and a misconception of the true relationship existing between them. W. C. Krauss (*Medicine*, October, 1904) has attempted a classification based on the pathological standpoint in such a manner as to meet all the different views taken on this subject. Hydrocephalus may be either acute or chronic. The acute or inflammatory form may be either external, due to an inflammation of the meninges, or internal, due to an inflammation of the ependyma. The chronic forms may be either congenital (developmental) or acquired (obstructive). Each of these is described. Cases of alcoholic pseudotabes are not so rare among women as to call for reports of cases except where unusual sequelae are present. The case reported by the author terminated in death through an intercurrent serous meningitis or

acute internal hydrocephalus. The patient was a pronounced alcoholic and suddenly developed ataxic symptoms which grew gradually worse until she finally presented the type of paraplegia characteristic of alcoholic neuritis or false tabes. The mental symptoms were well marked, but there were no disturbances of the vesical or rectal reflexes until a few days before death, which occurred practically without symptoms or external evidences of dissolution.

The Paradoxical Flexor Reflex; its Diagnostic Value.—A. Gordon (*Am. Med.*, December 3, 1904) describes a reflex which, in his opinion, by its novelty and diagnostic value in organic diseases of the nervous system ranks alongside of exaggerated knee-jerks or the phenomenon of extension of the toes. He claims that it is of great value, particularly in those obscure cases, in which other symptoms are vaguely manifested, also in those in which the diagnosis between organic and functional disease is doubtful. He says that in the latter case especially this new reflex renders great service and consequently may give an entirely different orientation in regard to the prognosis and treatment. Gordon cites one case among many others, in which the foregoing is well illustrated. He examined 30 cases of various organic diseases and for the purpose of control he examined several hundred normal individuals and about 50 cases of various nervous diseases in which the new reflex could not be expected. The reflex is elicited by pressing upon the flexors of the legs in a certain manner which must be followed strictly and for which the reader is referred to the original article. Gordon calls it paradoxical, as excitation of the flexors gives extension instead of flexion. The article also gives Gordon's view concerning the relationship of his reflex to other reflexes, particularly those which are manifestations of involvement of the motor tract.

Tachycardia and Injuries.—U. F. Martin (*Med. Rec.*, December 3, 1904) terminates an extended exposition of the literature of tachycardia by the report of a case of his own. The patient was caught by his coat in a rapidly revolving wheel and whirled about till the throwing out of a cog stopped the machinery. He was deeply asphyxiated when cut down, though he had not lost consciousness, both feet were crushed, and several ribs were fractured. Amputation of both legs was necessary, and during the operation the pulse varied from 144 to 175. He was delirious for over a week, during which his pulse remained at 150. In the course of the next four weeks it gradually dropped to 112-120, but rose again to 150 after a secondary operation on the flaps, and was still 112 on discharge over seven weeks after the injury. During his stay in the hospital no murmurs or abnormal signs other than the rapidity and a slightly accentuated second sound could be detected about the heart. The author places the case under the head of pure cardiac neuroses following injury to the neck and chest.

Cerebellar Localization.—Pagano (*Rivista di Patologia Nervosa*, Vol. IX, 1904), published a study of cerebellar localization. The cerebellum is not functionally a homogeneous organ, but depends for its activity on definite and distinct parts. It should be possible to develop a true and definite localization. Pagano has been able to define the location of certain centers, even motor centers. These motor centers are not situated on the surface of the organ but within quite different cerebral cortical centers. Luciani says it is not possible to exclude from the cerebellum participation with psychical centers. An original theory (Luciani) considered that force emanated from the cerebellum. The theory of Flourens and Ferrier considered chiefly the method of

its distribution. Pagano combined the two and held that some impulses, capable of causing a muscular contraction arose from some parts of the cerebrum but are rarely derived from the cerebellum where ultimate nervous ganglia exist. The cerebellum exerts a tonic, static, and sthenic function, and acts as a regulator between motor impulses. Clinical observations cannot exclude the psychical activity of the cerebellum. An important part of the work of the cerebellum is its influence on the reflexes. It is certain that lesion of the cerebellum increases the activity of the knee-jerk and diminishes certain reflexes.

Hysterical Pseudotetany.—The great simulator, hysteria, may even closely mimic that peculiar clinical entity, tetany, according to H. CURSHMANN (*Dent. Zeitsch. f. Nervenheilk.*, November 9, 1904). This simulation is so well marked that well-known students of tetany in France, have fought the conception of tetany as a disease *sui generis*, and have classed it with the diatheses of contracture. Hysterical pseudotetany is a disease corresponding to the polymorphic and genuine disease. It has manifold varieties and yet it is a distinct clinical entity. It is not merely an imitation of the grosser convulsive manifestations of tetany, but closely apes nearly all the objective and subjective aspects of this disease. It displays the same pathognomonic phenomena as tetany. Trousseau's sign, which is partly sporadic and quickly disappears after the attack; also the facial phenomenon and the mechanical irritability of the motor nerves are present. One sign, however, is absent, namely, the rise in electrical excitability of the motor nerves. This is the cardinal symptom in the differential diagnosis between the two diseases.

Polyn neuritis.—DE RENZI says (*Gazz. degli osped.*, September 25, 1904) mixed types are most common; pure motor cases are occasionally met with, with inappreciable sensory changes. The upper extremities are more commonly affected than the lower, especially in cases of lead poisoning. In studying the motor paralysis note that while normal subjects lying on their back hold their feet at right angles to the leg, the cases of neuritis hold the feet at an obtuse angle. In polyn neuritis the muscles are usually attacked. Notice the gait of the patient, and how closely it simulates that of the cerebellar ataxia, the titubating, drunken or zig-zag gait, with a tendency to fall to one side. Recall the gait of a tabetic, which presents the so-called "stamping" phenomena. The gait is quite different from that of cerebral hemiplegia. In multiple neuritis the patient cannot lift the foot, and consequently must make a movement of flexion of the thighs, like horses made to trot in sand, or the so-called "high school gait." Of the question of localizing the paralysis three types are distinguished: Antibrachial type, Aran-Duchenne, and brachial type. In the first, the radial nerve is chiefly affected, which innervates the triceps, forearm, muscles and extensors; this is seen in lead poisoning. The second type, less common, affects muscles innervated by the median nerve, affecting the pronator muscles of the thenar eminence, adductors of the thumb, and some of the short flexors. It causes the so-called monkey's hand. The third type, still rarer, affects the deltoid biceps, brachialis anticus and long supinators. The supra and infra spinatus muscles are sometimes affected and also a portion of the pectoralis major. The reflexes may be normal or lost. Usually there is considerable muscular atrophy. Fibrillary twitching of the affected muscles may be present. Both faradic and galvanic excitability may fail, or faradic fail and the galvanic be increased to the point of reaction of degen-

eration. Test the excitability of both nerve and muscle. Glossy skin is a common trophic disturbance. Gluber's symptom is an indolent swelling of the back of the hand, sometimes reddened of variable extent. The complication of polyneuritis and psychical symptoms has been studied under the name of Korsakoff's disease. The chief etiological factor is some form of intoxication, infection or diathesis.

Tremors as Physiological Phenomena.—BLOCH and BUSQUET (*Presse Med.*, No. 11), offer a study of physiological tremors, as measured by accurate apparatus in normal and diseased subjects. The different portions of the human body present tremors varying in rhythm and extent. Pressure of strain applied to any part experimentally produced an increase in the intensity of the oscillation, but did not influence the frequency of the movement. Cold water varies these tremors. The different types of tremor—occurring in paralysis, Basedow's disease, alcoholism, lead poisoning, mercurial poisoning, each have their own characteristics. The camera can be used in distinguishing these types. Nearly all these tremors are symptomatic rather than pathological entities.

A Case of Multiple Sclerosis Following Whooping-Cough.—GUSTAVO MINCIOTTI (*Gazz. degli osped.*, October 2, 1904) contributes to the study of multiple sclerosis a rare case of the disease in a child. The etiology is an infectious disease, pertussis. In some published cases the interval between the pertussis and the attack of multiple sclerosis was too long to make the connection sure. In the author's case the interval was very brief, and the symptoms of multiple sclerosis appeared before those of the whooping-cough were entirely finished. The clinical history showed change in the speech of the scanning monotonous type, intention tremor, nystagmus, exaggerated reflexes and other symptoms. The diagnosis of neoplasm of the brain was regarded as impossible from the absence of pain, vomiting and other pathognomonic symptoms. Friedrich's disease does not develop earlier than ten years, the nystagmus is inconstant, the reflexes should be lost instead of increased, and the speech changes of Friedrich's disease do not resemble those of multiple sclerosis. The course of multiple sclerosis may be remittent or intermittent, the symptoms may improve or disappear. The tremor varies at different times and in different cases. The gait is distinctly cerebellar, paretic, spastic, the speech disturbance is subject to great variation.

EYE, EAR, NOSE AND THROAT.

Esophagismus.—HUCHARD (*Gazz. degli Osped.*, September 27, 1904) discusses the two great causes of esophageal dysphagia: (1) Parietal lesion, carcinoma, scars from caustic agent, syphilis; (2) Functional disturbance characterized by a spasm of the walls of the esophagus (esophagismus). The same result is produced by both these causes, the calibre of the esophagus is altered. The spasmodic conditions are similar to the urethral. Except that functional activity of the esophagus is more apt to cause the spasm than passing a sound or other foreign body, which is rather the reverse of the usual action of the urethra, where urine will freely pass but a sound be resisted. The diagnosis of esophagismus is often difficult; it may depend on some slight lesion. Pain may be present in some portion of the esophagus. Sounding is often dangerous. The use of X-ray is of most valuable assistance. If the sound is arrested one day and not another a spasmodic condition is probable. If X-rays are used, the patient should be made to swallow a capsule of bismuth, to locate the

stricture; or the bismuth may be used in suspension in water. Esophagismus is due to hysteria or other nervous causes, and to arteriosclerosis. To treat the stricture, electrical methods may be used, applied locally by a sound.

Exophthalmos in the Newly Born.—Ordinary variations in the infant's head, which result from the pressure incident to birth afford little more than transient interest. When, however, exudations are of such nature as to produce exophthalmos or some such serious lesion, they certainly merit the closest attention. HUGH H. BORLAND (*Lancet*, November 12, 1904) recites the history of a case in which the vault of the cranium showed evidence of protracted pressure; presenting a squashed appearance, the frontal and parietal bones being practically at right angles. The labor had not been instrumental. The child's face was pallid and both eyes were so markedly exophthalmic that the organs protruded like goggles. This was so marked that the sclerotic coat was seen above and below the cornea and the eyelids were unable to meet. There was no ptosis. The pupils were equal and fully dilated. A few hours after birth, an effusion of blood under the conjunctiva of the right eye was noticed. Paralysis of the recti followed but this was confined to the right eye in which the hemorrhage had been seen. On the third day an ecchymotic patch was observed on the external surface of the right upper lid. On the fifth day the paralysis of the superior rectus became less marked. On the seventh the effusion under the conjunctiva had diminished and did not encroach beyond the upper margin of the cornea. On the ninth day when the child raised the eyeball, one-third of the cornea was above the level of the inner canthus. On the tenth day the exophthalmus was no longer evident. On the nineteenth day a clot of coagulated blood came down the nostril. Three weeks after birth there was still soon a slight degree of paralysis in the superior rectus. Three years later the child was normal in every respect. The question arises whether the pressure causing this lesion was intra-uterine or not. There was no history of hemophilia. There was absolutely no caput succedaneum although the labor was moderately long. The mother's pelvis was normal. No instruments, it must be remembered, had been used, and it is difficult to understand how sufficient pressure could have arisen either from the head impinging upon the promontory of the sacrum or upon the pelvic floor. Whatever its origin, the bulk of the pressure had fallen on the right side of the cranium, there being little or no hemorrhage in the left conjunctiva. The discharge of the clot from the right nostril is perhaps to be accounted for by the fact that in children there is almost always a communication between the nasal vein and the superior longitudinal sinus in the antrum. Altogether the case was a difficult one to explain. It might arise from extreme hyperemia behind the eyeballs, or possibly to the fact that the child, on being delivered, fell to the floor, the small friable bones of the face having possibly been broken. Damage to the cavernous sinus might possibly be the cause of the trouble, but whether this was due to pressure or to inherent frailty of the blood vessels or to the condition of the blood is indeterminate. The fetal blood in that of the newly born differs in quantity and quality from that of the adult, the young infant having less blood in proportion to the entire body-weight. The author's experiments go to show that infantile blood has a higher specific gravity and higher hemoglobin percentage than the maternal blood. That the coagulation power of infants' blood is, first, very much below that of an adult's blood, and second, that this degree of coagulability is very variable.

PRESCRIPTION HINTS.

Dysmenorrhea.—The following has been found efficient in relieving spasmodic dysmenorrhea:

℞ Ext. hyoscyami fluidi.....f3 ii (8.00)
Ext. cannabis indicæ fluidi... f3 i (4.00)
Ext. cimicifugæ fluidi.....f3 iv (15.00)
Spiritus camphoræ.....f3 i (4.00)
Spiritus ætheris comp...q.s.ad f3 iii (90.00)

Misce.

Sig. Teaspoonful in water three times a day several days prior to and during menstrual epoch.

Synovitis.—Used in acute conditions. This solution may be employed hot, and joint surrounded with hot water bags; or, if more agreeable to patient, may be employed ice cold, and joint surrounded with ice-bags. The rubber bandage firmly applied frequently relieves pain and swelling.

℞ Liquoris plumbi subacetatis..f3 ii (60.00)
Tincturæ opii.....f3 ii (60.00)
Aque bullientis.....q. s. ad f3 xxxii (960.00)

Misce.

Sig. Apply upon soft cloths saturated with solution, and place joint at rest.

Epistaxis.—The following has been found efficacious in this affection:

℞ Adrenalin chloridi.....gr. ½ (0.03)
Acidi borici.....gr. xlv (3.00)
Aque cinnamomi.....f3 x (40.00)
Aque camphoræ.....f3 x (40.00)
Aque destillatæ.....q. s. f3 iii (90.00)

Misce.

Sig. Warm gently and instil with a dropper.

Fissure of Anus.—As a laxative the following has been found to have merit:

℞ Sulphuris loti.....3 vi (24.00)
Potassii bitartratis.....3 ii (8.00)
Pulveris sennæ.....3 i (4.00)

Misce. Pone in cachetas No. xii.

Sig. One each night at bedtime.

To relieve pain and promote healing:

℞ Iodiformi3 i (4.00)
Acidi carbolicæ.....gr. xx (1.30)
Petrolati spissi.....3 i (32.00)

Misce.

Sig. Apply once daily with hard rubber pilepipe after evacuating bowel with enema.

Prostatitis.—In acute conditions of this affection with vesical irritation and tenesmus, or with slight prostatic hemorrhage, the following is useful:

℞ Tincturæ veratri viridis.....℥ xxiv (1.60)
Morphinæ acetatis.....gr. iii (.20)
Syrupi acidi citrici.....f3 iv (15.00)
Liq. potassii citratis...q. s. ad f3 vi (180.00)

Misce.

Sig. Two teaspoonfuls in water every two hours.

Prurigo.—In anemia and debility use the following:

℞ Olei amygdalæ amaræ.....℥ iii (.20)
Olei morrhuæ.....f3 vi (180.00)
Acaciæ3 i (32.00)
Extracti pancreati.....3 ii (8.00)
Liquoris calcis.....q. s. ad f3 xvi (480.00)

Misce. Fiat emulsum.

Sig. One to two teaspoonfuls two hours after meals.

Blepharitis Marginalis.—For eczematous forms:

℞ Hydrargyri oxidi flavi.....gr. i (.065)
Olei amygdalæ expressi } aa ℥ x (.60)
Aque destillatæ }
Lanolini3 ii (8.00)

Sig. Apply to margin of lids night and morning.

THE MEDICAL NEWS.

A WEEKLY JOURNAL
OF MEDICAL SCIENCE.

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SATURDAY, JANUARY 14, 1905.

PERIPHERAL NERVE REPAIR AND THE NEURON THEORY.

THE recent appearance of a work (Ballance & Stewart) the chief inspiration of which was a desire for a correct understanding from the surgical standpoint, of the process of repair in the peripheral nerves, has emphasized the importance of this subject; while the more recent revival of surgical work along this line has made this interest acute.

From the time of Ranvier, whose positive ideas regarding the mode of regeneration in the peripheral segment of a divided nerve deviated radically from that of some of his contemporaries, opinion and demonstrated fact have diverted first to one side and then to the other of a warm controversy, with able advocates for each new theory and each modification of the old.

We seem now in a better position to answer the various questions incident to the controversy than ever before, and, as usual, we find some elements of truth clinging to each of the various theories of the past. Whether the nerve heals by a growth of the axis cylinder from the central stump into the distal segment, which latter in turn remains passive during the repair process (Schiff, Ranvier, Stroebe) or whether the peripheral segment takes an active part in the process of healing through

the peculiar activity of the neurilemma cells belonging to it (Bowlby, Ziegler, Weir Mitchell, Howell and Huber, Bethe), have been the main questions. As corollaries to these questions, discussions regarding the behavior of the axis cylinder in repair, the origin of the myelin, its function and time of appearance, comparison of the first signs of repair in the proximal and distal segments, the peculiar features of repair following compression, and other similar discussions have appeared from time to time. Now that we are in a position to settle more or less definitely the two chief questions, a review of the evolution of our present knowledge is of considerable interest and reflects in no small degree the advance of neurological knowledge incident to the last decade.

Shortly after the publication of the neuron theory, there appeared as more or less corroborative of it the work of Stroebe (1893) who, since he described in extensive detail the growth distalward of the axis cylinder from the central stump of a divided or compressed nerve, was supposed to have placed an important stone in the foundation supporting Prof. Waldeyer's theory. The publication of the author's stain for the axis cylinder gave it added weight and since the work seemed to emphasize the primacy of the neuron body and the essential unity of all its elements, it fitted admirably into the trend of thought of the period and was quickly accepted and found its way into many text books. The views of Phillippeaux and Vulpian, as well as those of Hjelt, and Tent of an earlier period, who maintained opinions opposed to Stroebe's, were supposed to have been effectually and finally answered in the body of his thesis, while the meager facts supporting the neuron theory at that time gave his contention further support. But the reign of undisputed peace was short lived. There was already appearing in Hungary, a quarter where it attracted little attention, a publication destined to be followed by others from a versatile and persistent investigator which struck at one of the essential elements of the neuron theory, the independent unity of the neuron. Apáthy's subsequent writings, appearing in the Italian and German languages, attracted more attention. By means of his staining method, he was able to demonstrate in clear and sharp contrast the neurofibril, or primitive fibril conceived of years before by Schaefer. He not only proved the fibrillary structure of the axis cylinder process and the fibrillary arrangement existing in the

body of the neuron, but he also called attention to the fibrillary communication between different neurons (a fact undemonstrated up to that time) and in some of the lower forms of animal life an actual communication between the dendrites and collateral branches of the neuron itself. He regarded the neurofibril as the conducting element of the neuron, a point, however, which he failed to prove.

Apáthy's first work remained unnoticed. His subsequent work was received with more or less indifference until the recognition of Held and Bethe and Nissl on the continent of Europe, and of Barker in our own country, accorded him a place among the best workers of the period. And now both his work and the conclusions that he drew from it are quite generally accepted. It seems we may accept the neuron theory as a fact with this as its corollary;—that actual continuity between neurons does exist and is maintained by means of the primitive neurofibril. This is accepted unreservedly by Nissl (1904) who has lately published several communications regarding the fibrillary structure of the intercellular substance of the cerebral cortex. But the most important and most conclusive thesis comes from the work and able pen of Bethe (1903). One of the most important portions of the work of this author is that bearing upon the repair of the divided nerve after section and the behavior of the peripheral segment during the process. He not only shows the importance of the peripheral segment during the repair process, but the prime importance of the reestablishment of the fibrillary structure of the axis cylinder before the nerve can conduct cerebral impulses. This forms a distinct addition to our knowledge and forges the last link in the chain of evidence in favor of Apáthy's original contention that the neurofibril is in fact the conducting element of the neuron, a contention which he failed to substantiate, as noted above.

Bethe furthermore demonstrates the great importance during the repair process of the cells of the neurilemma belonging to the peripheral segment. In very young animals he succeeded in bringing about an almost complete repair without allowing the peripheral and central stumps to unite. This "autogenetic" power of the peripheral segment of a divided nerve to regenerate diminishes, however, with age; moreover, regeneration up to the point of the formation of fibrils in the axis cylinder does not take place independent of the central segment. The power of the

axis cylinder to grow peripheralward (recognized by Bethe) exhausts itself after a growth in length amounting to about two centimeters. Thus we find in this work of Bethe's the principles by which we may justify and harmonize the divergent views of other investigators of an earlier period.

BIOLOGICAL INHERITANCE.

"NATURAL SELECTION" and "the survival of the fittest," familiar terms, which the genius of Charles Darwin has long since made almost household words, are receiving blow after blow in recent years from the accumulative effects of which they can scarcely recover. Soon these notions, too, in their original forms, will probably be relegated to the numerous company of the departed—in Bacon's phrase, outgrown "idols of the theater." It is not so much that the principle of teleology, which so long has appealed to man's ethical nature, is losing support and being cast aside in this age of religious iconoclasm, as that newer facts and truer theories are threshing over the foundation-hypotheses of biological evolution as set forth by Darwin and by Lamarck, and not ungently casting out the chaff. Teleology, far from being discredited, is only set further back into the basal philosophy of life and given its truer place in the principles rather than in the details of the natural order.

The latest substantial contribution to the destructive criticism of natural selection as Darwin defined it ("the preservation of favorable individual differences and variations and the destruction of those that are injurious"), is to be found in Morgan's essay "Evolution and Adaptation," a book as simple as it is argumentatively convincing. It serves especially to set forth even for the busy physician the becoming mutation theory of inheritance as opposed to the doctrine of selection, so many years the generally accepted theory of at least the amateur biologist.

It is to Gregory Mendel's work in 1865 that we owe the facts underlying the mutation theory, although the importance of it only the last few years have recognized. This work was discussed in the Congress of Arts and Science at St. Louis and said to be "one of the most prominent papers ever published in biology," as is undoubtedly the fact, for it seems to be the basis of a theory of heredity much more sub-

stantial and scientific than any other which now is current. Its recall to life is due to the similar discoveries of de Vries. The general principle involved in Mendel's law of mutation may be best stated by a theoretical case: "If *A* represent a variety having a certain character, and *B* another variety in which the same character is different, let us say in color, and if these two individuals, one of each kind, are crossed, the hybrid may be represented by *H*. If a number of these hybrids are bred together, their descendants will be of three kinds; some will be like the grand parent *A* in regard to the special character that we are following, some will be like the other grandparent, *B*, and others will be like the hybrid parent *H*. Moreover, there will be twice as many with the character *H*, as with *A*, or with *B*. If now we proceed to let these *A*'s breed together, it will be found that their descendants are all *A*, forever. If the *B*'s are bred together they produce only *B*'s. But when the *H*'s are bred together they give rise to *H*'s, *A*'s, and *B*'s. * * * In each generation the *A*'s will also breed true, the *B*'s true, but the *H*'s will give rise to the three kinds again, and always in the same proportion." It is the exact numerical relation between the different varieties which here constitutes the striking fact, for heredity thus becomes an exact relation based on the calculus of probability for any series.

The explanation of this exact relation appears to be in short that every hybrid, in practice then every animal and plant, produces in its reproductive cells both male and female germs, each of which is the bearer of only one of the alternative characters, dominant or recessive as the case may be. Such being the case and it being true that on the average there are the same number of female and of male germs in a given generation, each having one or the other of these kinds of characters, then on a random-assortment meeting of these female cells and of male cells, the results of Mendel's law would follow. For 25 per cent. of dominant germs would meet with 25 per cent. of dominant germs; 25 per cent. of recessive germs would meet with 25 per cent. of recessive germs; while the remaining 50 per cent. of each kind would meet with each other, and form hybrid mutations.

So far as variation is concerned then, change, evolution, takes place by steps each at once produced *de novo*, and not by gradual and continuous variations as Darwin's theory of natural

and sexual selection implies. Inheritance is by mutation based on the chance meeting of different mixed inherited germs. Such is the evidence of most of recent researches on heredity, such, for example, as that of Castle with guinea pigs.

The bearing of these mutations according to the doctrine of probability on the theory of biological evolution is obvious. It may explain the essential problem of that theory, namely the origin of the experienced variations and the causes of the changes from generation to generation. This really important question the Darwinians appear to have neglected for the very different problem as to the causes of the survival of a changed species after it has been produced. The mutation theory, unlike that of selection, accounts for the origin of useless or even harmful variations, and many instances of these are, of course, to be found in the brutes, while one in man, the vermiform appendix, will readily occur to nearly everyone these days. On the other hand, demonstration that adaptations occur merely because of their usefulness is not complete. Teleological natural selection not only presumes and asks rather too much *a priori*, but the underlying principles bid fair to be more or less disturbed by the numerous and very various actual researches recently completed and now going on. It is only the normal condition of progress—a rich but too inclusive hypothesis giving way to the more exact facts of a somewhat later period, controlled by the theory they supplant.

QUACKERY AND ITS DEFEAT.

DOCTOR A. T. SCHOFIELD of London recently published in the *British Medical Journal* a brief article, embodying a suggestion very significant to all who wonder at the prevalence of quasi-medical humbugs or worse,—and who forsooth does not! This suggestion is in direct line with one of the strong medical tendencies of the times, namely, the more adequate recognition of the mental aspect of the individual. It recommends, in fine, that our future physicians be instructed systematically in the power of mental influence over the minds and bodies of all sorts of people, for it is by practically this means that the charlatan gains his livelihood.

The quack is nearly always a clever fellow with insight far-reaching into the common human nature. Fond of money and that which it will

buy, yet afraid of the vigorous labor by which alone scientific medical knowledge can be acquired, he looks within his own self as type of other selves to see how the game may best be played. He finds there a weakness of judgment based on lack of knowledge which, not unnaturally, he accords to the great multitude of his brothers and especially to his sisters and his cousins, and his aunts,—and these he can reckon not by “dozens” but by millions all over the world. A weak judgment (in other words a relative lack of commonsense), whether or not based on ignorance, is the natural prey of suggestion from a mind allowed to come in contact with it. This contact is brought about, as we all too well know, by wide and omnipresent, persistent advertising, and usually, through this agency, as the mere repeated categorical statement that maladies, even the most incurable, have been and may be cured, and will be cured therefore in the reader’s particular case. Aware that the art of medicine is not as yet, alas! certain master over all the multifold adverse conditions of human health and life, even the somewhat intelligent man or woman listens to these claims (which he cannot but “hear” if he uses eyes at all) and patronizes the quack who makes them. Either the latter uses modified scientific medical methods and manages to confer real benefit on a real disease but at a large price and under unpleasant conditions; or he works upon the subconscious mind of his victim, and cures an hysterical or imagined disease, claiming it organic, or, more commonly than either, he does neither of these,—but collects unfailingly large and unearned fees, perhaps month after month, just the same, reluctantly leaving the patient only when the latter begins to realize that he is buying experience at much more than the current rate. In what proportion of cases the quack benefits “organic” disease by mental influence which the physician or surgeon would have treated more radically, it is difficult to say, but there are certainly signs of a growing belief among many excellent scientists that, be it mistaken diagnosis or be it something harder to explain in physiological terms, the mind can dictate more to the body than the more materialistic of our profession can be made to believe.

In all of these cases, except the out-and-out robbery of collecting fees where no fee is even remotely due, there are conditions which the average quack seems to appreciate better than the average physician,—and this need not, as it

should not, be. It is the privilege of the medical profession to minister to the whole and not to a part only of his fellows, for to him belongs by education the best of human knowledge concerning life and the conditions of its maintenance. All that the professional man demands in opposing the ever growing horde of quacks of every sort is *knowledge* based on real and truly Christian science, dug out of nature by centuries of toil, thought out of normal and vigorous minds, collected, compared and systematized into the science and art all men recognize as Medicine.

The part of Medicine so understood, which is today the most neglected of all the many branches, is the science of the mental aspect of the individual. Indeed, in speaking of it as a branch we belittle it unduly for in a sense, like physiology, it underlies many other branches, is one of two or three foundations of the whole. If nothing else, quackery shows us that what the medical student needs most as addition to his curriculum, is a wide and detailed *knowledge of the individual* as an unit at once mind and matter, “fire and clay.” We hear much of this of late, but not yet enough so that more than two or three of our best medical schools out of the hundreds in the land include it in their subjects of instruction. The charlatan has little else than this knowledge of humanity oftentimes and he uses it, often wrongfully to be sure, but in a way none the less to show to the physician what benefit to humanity might accrue did the medical schools generally recognize its force. They, too, should learn that oftentimes ideas and emotions and beliefs and many abnormal conditions similar to these in substance have more influence over the man and woman than some of the agents which pathology describes. On the other hand, therapeutically, these factors of the psychophysical organism may be used sometimes as instruments more fitting and more adequate than medicine or even occasionally than surgical procedure. These means the physician could apply better than the quack, for the former has the ability to truly diagnose where the latter can usually only guess. Did the medical practitioner inspire invariably the confidence which the quack by mere force of suggestion often compels, how much greater still were his success! But too often he thinks of his patients as little more than organic machines best controlled by means which never range outside of narrow mechanical effects. Even the average quack knows better, and thrives largely on this

intuition. The whole fact is, the human individual is a far more complicated being than the average physician is apt to realize, however familiar he may be with the bodily nature of men and women. Every patient is like the circle's circumference,—convexity is inseparable from concavity, yet some of us see him only in his outer aspect, ignoring that the circle is the part within.

ECHOES AND NEWS.

NEW YORK.

The Society of Medical Jurisprudence.—The 186th Regular Meeting was held on Monday evening, January 9, 1905. The following addresses of the evening were read: "The Society of Medical Jurisprudence, its progress, prospects and importance," by the retiring President, Theodore Sutro, Esq. "The Importance of Medical Jurisprudence for the Physician," by the President-Elect, Carl Beck, M.D.

City Hospital, New York.—At the annual meeting of the Medical Board of the City Hospital, Blackwells Island, Dr. Edward S. Peck resigned the position of Visiting Ophthalmologist, held by him for over twenty-five years. With one exception this is the longest service rendered by any Visiting Surgeon to the City Hospital. Dr. Peck has been appointed Consulting Surgeon to the Eye Division of the Hospital.

New York Neurological Society.—The following officers were elected for 1905: President, Dr. Joseph Fraenkel; First Vice-President, Dr. J. Arthur Booth; Second Vice-President, Dr. Smith Ely Jelliffe; Recording Secretary, Dr. J. Ramsey Hunt; Treasurer, Dr. G. M. Hammond; Corresponding Secretary, Dr. F. K. Hallock; Councillors, Dr. B. Sachs, Dr. Adolph Meyer, Dr. Joseph Collins, Dr. Pearce Bailey, Dr. E. D. Fisher.

New York Hospital.—Several additional physicians are needed in the Class of Genito-urinary Diseases in the Male, which meets every Tuesday and Friday night at 8 o'clock. The number of patients averages over 75 each night, and constitutes a very instructive clinic for the study of this specialty. Physicians who are interested in Venereal Diseases, and who are willing to attend faithfully, will receive regular, but unofficial appointment upon application to Victor C. Pedersen, M.D., 16 West Sixty-first Street.

Pneumonia's Grip on City Tightens.—New York City is threatened with an epidemic of pneumonia. At Bellevue Hospital it was said last week that the week ending with Saturday night was almost a record week for pneumonia cases. The record from January 1 showed that fifty-nine persons had been taken to the hospital up to Saturday night, while during the day before many other cases which the doctors said might prove to be pneumonia were registered for observation. Bellevue is provided with six medical wards of twenty beds each, where pneumonia patients together with others may be treated. There is usually enough sickness among the poorer classes in the city to keep these wards pretty well filled, but with the extra number of pneumonia patients received during the last week every one of the medical wards is now overcrowded, and many of the patients have been transferred to the surgical wards, where they are occupying cots which at any time may be needed for patients requiring surgical treatment.

The Governor's Message.—The recent message of Governor Higgins contains a number of sound statements bearing on medical topics. It gives us pleasure to call attention to some in this place. Speaking on the subject of *Public Health*, he says: The best methods of preventive medicine and public hygiene should be adopted by the State and the civil divisions thereof. Germ diseases may be classed as preventable diseases, particularly those that are caused by the contamination of the water supply. All sources of public water supply should be examined and analyzed by the State commissioner of health as rapidly as possible and at frequent intervals. The private water supply of public resorts should also be subjected to State analysis and the results should be made public. I recommend that the Legislature devise a system of State inspection of domestic water supplies, to be maintained at the cost of the municipalities, corporations, and private owners affected thereby.

The growing demands for additional water supplies in the greater cities and for adequate supplies of pure and wholesome water for domestic purposes in other municipalities indicate that in the not distant future the problem of water supply for municipalities will be a most serious one. It seems doubtful whether all the centers of population can continue indefinitely to rely upon a natural supply of pure and wholesome water without recourse to artificial methods of purification. The question presents itself whether it is not feasible to develop some plan whereby the municipalities may be insured a water supply at a minimum cost under State supervision through State conservation of the waters of the Adirondacks and other sources. The Legislature of 1904 enacted a law creating a water storage commission which has for its object practically the conservation of water for power purposes. A State commission, having also for its object the supply of water to the cities, might be of great service.

Study of Pneumonia.—The pneumonia commission of the Board of Health, authorized recently by the Board of Estimate to expend \$10,000 to secure specific knowledge concerning pneumonia, and to ascertain what measures can be taken to decrease the rapidly growing percentage of deaths by that disease, has mapped out its work in such a way that by the middle of next summer a comprehensive report will be turned in. While the greater part of the work is to be done in this city, bacteriologists and pathologists are working along parallel lines in Boston, Philadelphia, and in Dr. Trudeau's sanitarium at Saranac Lake. In this city data are being secured at the Board of Health laboratory at the foot of East Sixteenth Street; at Bellevue, Mount Sinai and the Babies' hospitals, and in Dr. Prudden's laboratory. Twenty men in all are engaged, eight of whom are in the Board of Health laboratory. The commission expects to learn why the death rate from pneumonia has increased from 7 per cent. twenty years ago to 17 per cent. at the present time, although there has been an actual decrease in fatalities from all other diseases. It hopes to propose measures for the prevention of the disease which will enable the Board of Health to treat pneumonia as scientifically as tuberculosis is now treated. Probably the most important part of the work is to be done at Bellevue Hospital, where a new pathological laboratory has been fitted up at considerable expense. Dr. Charles Norris, for many years assistant to Dr. Prudden, pathologist at the College of

Physicians and Surgeons, was recently appointed pathologist at Bellevue at a salary of \$5,000 a year. Bellevue's contribution to the work of the commission will be to determine, after death, the distribution of pneumonia germs in the upper part of the nose and head, as well as in the bronchial tubes and lungs and the deeper cavities. Autopsies will be made in every case of death from pneumonia where permission can be secured, and a complete stenographic report of each autopsy will be made. The history of each case will be complete, in order that some idea of the effect of social conditions upon pneumonia can be secured. Aside from the aid to be given to the pneumonia commission, the new Bellevue pathological laboratory is expected to make valuable contributions to medical knowledge in other fields. In the past, when the cause of death has not been clear, and the course of a disease unusual, the pathological examinations have been made in various medical colleges, and by the members of the Bellevue surgical staff. For this reason the reports have not been as complete as they will be when the examinations are made under the supervision of one pathologist. While the reports at Bellevue will be mainly for the aid of the hospital staff, they will be published by the board of trustees annually. "The great amount of material available for pathological and bacteriological research at Bellevue has been wasted for many years," said Dr. John W. Brannan, President of the Board of Trustees. "In securing the appointment of an able pathologist we can now save this to science, and Bellevue can take the part it should have taken long ago in adding to the world's medical knowledge. We will now secure a complete history of every interesting or unusual case where we can get permission for an autopsy." The Bellevue laboratory occupies two rooms in the old boiler house, and is fitted up with complete bacteriological and pathological apparatus. Besides a stenographer, Dr. Norris will shortly have two assistant pathologists.

Insane and Charities.—On this vexed question made obnoxious by the late Governor Odell, some hope may be seen in Governor Higgins' message. He says: "The management of the State hospitals for the insane, fourteen in number, with a total number of patients on October 1, 1904, of 25,019, was completely centralized by legislation in 1902, abolishing the boards of managers of the various hospitals and leaving with the Commission in Lunacy complete jurisdiction, both as to financial control and internal administration. The advantages of centralized control of the financial operations of the hospitals are evident. It is of the utmost importance, however, that this great system of hospitals, involving the expenditure of so large a sum of money annually and the care of so many thousands of peculiarly unfortunate and defenceless persons, should rest upon a broad basis of public interest and public confidence, and should retain the cooperation of philanthropic citizens throughout the State. In my opinion this can best be secured by leaving the control of all financial matters, as at present, in the hands of the commission, and by providing for each hospital a board of managers, in general charge, through the superintendent, of the internal affairs of the hospital."

"The present overcrowding of the State hospitals, the large increase in the number of the insane each year, and the expiration—next September—of the lease of the buildings now occupied by 1,200 patients at the Long Island State Hospital at Flatbush, makes it imperative to take action during the coming session for a material enlargement of State hospital accommodations.

This can probably best be met, in part, by additional accommodations in existing hospitals, and in part by the establishment of a new State hospital. In increasing the accommodations in existing institutions the importance of providing for each State hospital a building especially adapted to the treatment of acute insanity should always be borne in mind.

"It is not the duty of the State to maintain in the State hospitals for the insane at the expense of the State, any insane person who has property or who has relatives legally chargeable with his support who are able, in whole or in part, to pay therefor. While the attorneys for the various State hospitals have in many cases been able to collect the charges for support of inmates from the persons and property liable therefor, no effective check is placed upon the commitment as dependent insane of those who are not properly State charges. The rapid growth in the population of the insane hospitals since the adoption of the State Care act is not entirely due to the increase in insanity in the State, but may to some extent be attributed to the practice of commitment of senile or feeble-minded relatives to the State institutions at the instance of those who are properly chargeable with their support. I recommend that before any insane person is permanently received as a State charge, the question be judicially investigated and determined whether such person is a pauper without relatives chargeable with his support and able to contribute thereto. The crowded condition of the State hospitals would, in my judgment, be relieved if they were maintained strictly as institutions for the pauper or dependent insane. Mild cases of insanity in a purely technical sense, due to old age or other cause, where there is no more need for State treatment than in other cases of illness, should so far as possible be excluded from the State hospitals and the patients cared for in the home or elsewhere as persons afflicted with other diseases are cared for.

"The most urgent need in connection with the State charitable institutions appears to be that of additional accommodations for the feeble-minded at the institutions at Newark and Rome. A substantial increase in the capacity of these institutions would make possible a transfer of many adult inmates from the School for Feeble-Minded Children, at Syracuse, and the reception there of many feeble-minded children who cannot now be accepted. The additional accommodations at Newark and Rome should be sufficient to provide also for the admission of many feeble-minded adults now in county poorhouses.

"Great progress has been made during the past few years in improving the reformatory system of the State, and in providing proper buildings and equipment for the best reformatory work. With this end in view, the commitment of girls to the House of Refuge on Randall's Island and the State Industrial School, at Rochester, has been discontinued, and the former House of Refuge for Women, at Hudson, has been converted into a State Training School for Girls. The State Industrial School, at Rochester, is being transferred to a country site, and a commission has been appointed to select a new site for the boys' department of the House of Refuge on Randall's Island.

"It would seem that some additional safeguards should be provided looking toward more public competitive bidding in the purchases made by the hospitals and State charitable and reformatory institutions, either by amendment of the law or by some set of rules and regulations to be adopted pursuant to statutory authority granted therefor. Purchases wherever possible should be made in bulk and in large quantities and from the lowest satisfactory bidder, after public advertisement

for bids. I recommend that all appropriations to enlarge or improve the State charitable and reformatory institutions be included in one bill with such provisions as will in every instance insure the most careful and economical expenditure of the moneys appropriated.

"I also recommend that suitable legislation be enacted to enable the State Board of Charities to transfer in proper cases inmates from one charitable or reformatory institution to another, where it appears that such persons more properly belong in an institution of the State other than the one to which they were originally committed. Different classes of defectives should not be allowed to remain in the same institution if by proper system of transfers they can be so distributed as to receive the best and most scientific care."

PHILADELPHIA.

State Board Examination.—Of the 126 candidates who came up for the examination 39 failed to obtain the average grade required to pass. Of these three failed to complete the examination. The students present were graduates from colleges of this country, Germany, France, Italy, Spain, Russia and Japan.

Oncologic Hospital Opened.—This event was marked by the presence of such members of the Board of trustees, as George H. Stuart, Jr., President; William H. Scott, Vice-President; C. Wilson Roberts, Secretary; Richard T. Cadbury, Treasurer; also The Rev. Dr. Perry S. Allen. There were many surgeons and physicians present, among them, Dr. G. Betton Massey, Dr. Addinell Hewson and Dr. Howard Swayne who are the Attending Surgeons and Dr. Boardman Reed, Attending Physician; Dr. William S. Newcomet, his Assistant, and Dr. J. Solis Cohen, Consulting Laryngologist.

Elections.—At the annual meeting of the Board of Trustees of the Samaritan Hospital the following officers were elected: President, The Rev. Russel H. Conwell; Vice-President, Cyrus S. Detre; Treasurer, John Little; Secretary, William B. Craig. Fifteen members of the Board were elected; Charles A. Gill was appointed as Superintendent of the hospital and Miss Margaret J. Maloney as Chief Nurse. Alfred Moore, of the Board of City Trust, was elected a member of the Board of Trustees of the Jefferson Medical College and Hospital to fill the vacancy caused by the death of Judge Arnold. The following officers have been elected at the meeting of the College of Physicians: President, Dr. Arthur V. Meigs; Vice-President, Dr. James Tyson; Censors, Dr. Richard A. Cleemann, Dr. S. Weir Mitchell, Dr. Horace Y. Evans and Dr. Louis Starr; Secretary, Dr. Thomas Neilson; Treasurer, Richard H. Harte.

Academy of Surgery.—This meeting, on January 2, was the occasion of their annual address, which was given by Dr. J. Chalmers DaCosta upon "The Surgeon." In opening the address he reminded the society that this was the 25th annual address of the Academy and that the first one was given by the late Samuel D. Gross and the second by Dr. Agnew. He first dealt with the question "Why does a man become a surgeon?" Many men have the desire from early youth, and he gave instances of several great men whose surgical aspirations date back to an early period in life. Then, he said, family influence determines it in many instances and he noted that Abernethy wanted to become a lawyer, but through the influence of his father he turned his attention to surgery. Others, he said, were induced to take up the profession after having seen an operation, or having visited a hospital or from seeing an ambulance. Few great men become surgeons, as men with

broad, philosophic minds, incline to research work and confine themselves to laboratory work. Because medicine is not an exact science, he said, quackery is stimulated. He then compared the profession with the trade; the latter is merely working to obtain the almighty dollar, while the profession has greater consideration for the good that it does than for the financial recompensations derived from his work, and the surgeon who does not entertain those views is not doing his duty to his profession, and the surgeon who does not do his duty is mixing profession with trade. The commission-paying surgeon DaCosta places in a low social order. He said, surgeons are divided into two groups, the conservative and the radical. The first, he said, looks upon new things unfavorably, follows customs blindly and progresses in a circle. The conservative is rarely brilliant and dashing. The radical surgeon is an original thinker, has broad ideas, he may jump at conclusion and often falls short of his mark. He has a contempt for authority and is constantly discovering new things. A good surgeon must first be a good physician. He then discussed the relationship between the specialist and the surgeon. The surgeon must not take the findings of one specialist to come to a diagnosis. He must take the chain of findings and compare them with the clinical deductions and then make his diagnosis.

Meeting of the Philadelphia Medical Examiners.—This was held Tuesday, January 3, and the first paper was read by Dr. Wilmer Krusen, upon "Gynecological Diseases in Relation to Life Insurance." He called the attention of the Society to the fact that of those examined the blanks of but two companies referred to the examination of the pelvic organs. The bimanual examination is required to determine disease of these organs. He informed the society that renal disease is frequent in primipara above 35 years, therefore it is probably better to wait until after the first labor before insuring them. Since about 95 per cent. of cancer of the genital tract occurs at the cervix, he is inclined to believe that the injuries incident to labor in some way predispose to the production of this disease. The triad of symptoms of cancer are pain, bleeding and offensive discharge, two of which may be absent. Post menopause bleeding must be looked upon as with some suspicion of the presence of cancer. To diagnose cancer physical examination is necessary. Dr. Krusen does not believe the displacement of the uterus increases the risk, but he does believe that applicants with tumors of the breast should not be insured. He maintains that a patient in good health after an abdominal operation can be insured with safety, provided there is no evidence of hernia two or three years after the operation. He is of the opinion that applicants who refuse a pelvic examination should not be insured. In opening the discussion, Dr. Bradford said he was at loss to know why the companies neglect to put a space for examination of the pelvic organs on their blanks. Dr. Wolf asserted that a medical examiner should prognosticate the liability to disease and the outcome of the disease with which he predicts the applicant is likely to be afflicted. He inclines to the belief that it would be better for the company not to print a blank with a specified set of questions, but hold the examiner responsible for a thorough examination of the applicant's condition. Dr. Hammond states that a woman over fifty is a better risk than a man. Dr. Barnes called the attention of the society to the difference between the relation of the physician to the patient and the relation of the physician as examiner to the applicant. Dr. H. M. Christian then read a paper upon "The Macroscopic Appearance of the Urine in Relation to Venereal Diseases." In speaking of syphilis, he

stated that if a patient admitted having the disease he should not be rejected at once but should be questioned closely as to whether he has been under treatment; if the applicant has been under treatment for two or three years, he believes the risk is a perfectly good one. He then spoke of the shreds in the urine, and said they are not as significant as is generally held. If the urine contains shreds about $\frac{1}{2}$ inch long which sink to the bottom of the vessel quickly the presence of a stricture should be suspected. If the shreds float they are due to some catarrhal condition of the urethra and are of no importance. When the stricture is above 20 caliber the risk is good, but when it is 18 or 16 then it is liable to produce surgical conditions in the kidneys. In speaking of hypertrophy of the prostate gland, Dr. Loux calls attention to the fact that often an applicant is insured in whom there was present, at the time of the examination, a tuberculous focus in the epididymis which may travel along the vas deferens to the seminal vesicles, then to the prostate and so involve the bladder and then kidneys. The mortality of hypertrophy of the prostate is not great if the case was properly treated. Infection of the bladder is nearly always due to the use of the catheter. Malignant disease of the prostate is often overlooked by Medical Examiners, also gonorrheal infection of the seminal vesicles. In such a condition intervals occur when the urethra is free from infection, then there is a discharge from these organs which infect the urethra anew. If the applicant should present himself during the interval when the urethra is free from the infection he would be insured while there is present a disease which vitiates the risk. Dr. Brick, in speaking of conditions of the rectum in relation to life insurance, said that carcinoma and fistula in ano are the two which attract attention. Many fistulae are tuberculous.

Perforation in Typhoid Fever.—This paper was read by Dr. J. Allison Scott, at the meeting of the Section of Medicine at the College of Physicians, January 9. His article is based upon the 50 perforations that occurred at the Pennsylvania Hospital during the last four years. He said the greater number of cases occurred under the age of 30. Twenty-seven of the cases were severe, accompanied by delirium, chills and hemorrhage. In 86 per cent. of the cases the perforation was in the ileum; in the third foot of this part of the intestine there were no perforations, but in the fourth there was one. In four cases the appendix alone perforated and in one case the same ulcer was perforated at two points. Pain, tenderness and rigidity are the three cardinal symptoms. The pain is sudden, sharp and severe; in some of the cases there was no pain and in 21 cases it was on the right side; in one it was over the bladder and in one it began in the testicles and extended over the abdomen; in few it was generalized. Distention, he says, is a late symptom. In one-half of the cases there were no record of the leucocyte count; in 10 there was a rise and in three a fall in the number of leucocytes. He regards the leucocyte count as of very little aid in the diagnosis and says the obliteration of liver dulness is an unreliable sign. The diagnosis of perforation was made in 37 cases of the series. Thirty-nine of the cases were subjected to operation, of which 12 recovered, 11 were not operated upon, all of which died. He notes that one out of every third death from typhoid fever is due to perforation and that recovery after operation occurs in one of every four cases operated. Perforation during typhoid fever is less frequent on the continent of Europe than in the countries of English speaking people. In opening the discussion on this paper, Dr. William Osler says that of the 1,500 cases of enteric fever at the Johns Hopkins Hospital 39 perforations

had occurred, 20 of which were operated upon and 7 recovered. In one other case the death occurred about seven days after the operation but was due to toxemia. In 7 of the 39 perforations hemorrhage was present. In three other patients hemorrhage took place some time before the perforation. Dr. J. C. Wilson maintained that the slightest suspicion of perforation should induce the surgeon to operate and he believes hemorrhage will engage the attention of the surgeon more in the future than it has in the past. Dr. Le Conte, during the discussion, said he could account for the absence of pain in some of the instances by the dulness of the sensibilities of the patient; he also believes the involvement of the parietal peritoneum gives rise to more intense pain than when the visceral peritoneum alone is involved.

Pneumonia in Philadelphia.—Pneumonia now heads the list of fatal maladies in this city, with consumption in one form or another a close second, according to the official report of the deaths in 1904, issued to-day by the Bureau of Health. The total number of deaths from pneumonia during the past year aggregated the alarming total of 3,360, as against 3,107 deaths from consumption, which, owing to its high death rate, is known to the medical profession as "the great white plague." Exposure to the cold, such as riding long distances in cold, damp trolley cars, where the atmosphere is vitiated by a lack of fresh air which is excluded in view of the absence of heat, is held by physicians, to be in the main responsible for the fatal prevalence of pneumonia. Contributing causes, colds contracted in places which are not sufficiently heated, the victim being unable to recuperate quickly, relapses follow, which usually result fatally. From now until the last of March these diseases are expected to increase. Notwithstanding death has been busy with pneumonia and consumption, the health of the city as a whole, is regarded by the authorities as being good. The total number of deaths during 1904 reached 25,972, which is only twenty-five more than the figures for 1903. These figures are viewed in a favorable light by the officials, who say that with the usual growth in population, an increase in the number of deaths is looked upon as a matter of course. The statistician of the Bureau of Health figures it out that the death rate per 1,000, last year, was 18.44, as compared with 18.82 per cent. in 1903. The official report giving the number of deaths from principal causes during 1904, compared with the record for 1903, is as follows:

Diseases.	1903.	1904.
Pneumonia	3,180	3,360
Consumption	3,053	3,107
Typhoid Fever.....	957	744
Small-pox	278	220
Diphtheria	521	458
Scarlet Fever.....	189	201
Membranous Croup.....	84	84
Sunstroke	23	6
Malarial Fever.....	3	11
Heart Disease.....	2,008	2,289
Apoplexy	965	937

The report of contagious diseases in 1904 compared with that of 1903 follows:

Diseases.	1903.	1904.
Small-pox	1,637	821
Diphtheria	3,043	3,456
Typhoid Fever.....	8,650	6,613
Scarlet Fever.....	3,200	3,659
Totals	16,530	14,549

The decrease in contagious diseases is attributed to the system of medical inspection introduced by the appointment of fifty physicians during the year, whose heroic measures under the direction of Director Martin have in many instances kept contagion from spreading.

CHICAGO.

New Superintendent of Chicago Baptist Hospital.—Joseph Purvis, for several years Chief Clerk and Assistant to the Warden at Cook County Hospital, has been appointed Superintendent of the Chicago Baptist Hospital, and will enter upon his duties shortly.

Report of Visiting Nurses' Association.—Nine hundred patients have been cared for, and 4,228 visits were made by this Association in December, according to the report of the Superintendent, made at the meeting of the Board of Directors, held January 4. It was added that financial limitations compel the refusal of calls daily.

Improvement in City's Health.—Mayor Harrison, in his annual report, states that the health department of Chicago has made a record for highest degree of healthfulness and lowest *per capita* expenditure for health purposes among all the cities of the world having populations of more than 300,000 each. Thanks to the intercepting sewer system, the water from all tunnels has been found, by rigid tests, to be as good as the samples taken twelve miles from shore, which is the department standard of purity or safety. The result is seen in the lowest typhoid fever death rate in the history of Chicago. To the improved quality of the milk supply, caused by the work of the department, aided by various volunteer agencies, is largely due the reduction of mortality among children of the milk-feeding period. The city is to be congratulated on the present condition of the public health and the promise of its further improvement. A gold medal has been awarded to the department by the Louisiana Purchase Exposition.

New Educational Methods.—Superintendent Cooley, of the Chicago public schools, put the present educational problem in a nutshell in his address before the Illinois State Teachers' Association, held at Springfield. He said that the mind must be trained through the hand; the playground is as important as the schoolroom; school athletics must be freed absolutely from all taint of professionalism. The child cannot be rightly educated without play. The playground, to use his words, "is and always has been one of the important moral as well as physical agencies of the schools." On the playground the boy sees real life. Its standards are most likely to be the standards of honor and morality, that he will take with him into actual life when school days are over. There seems to be a tendency on the part of the high schools to imitate the athletic vices of the colleges and universities. This Mr. Cooley calls the dangerous side of the reaction in favor of sports and games. When this is done, athletics, instead of being a vital factor in the training of hand, head and heart, become a demoralizing influence, not only to those taking part in the games, but to the entire school. In the training of the whole boy and the whole girl, in improving and developing the mind through the hand, the moral standards of the playground and the gymnasium must be kept as high as those of the schoolroom. Supt. Cooley has clearly outlined the new educational methods. He has the support of the most

influential educators of the country. The course he defines is certain to govern eventually, and it will be in every way distinctly advantageous to our future citizenship.

Cook County Coroner's Report.—In the annual report of Coroner John E. Traeger, it is stated that "The State maintains at enormous cost penal correctional institutions for men and boys who have committed crime, but permits them to buy, unrestrained, the means of committing it. When the State strikes at the root of the crime instead of devoting all its attention to punishing offenders, it will greatly reduce the cost of maintaining its penal institutions and prevent hundreds of murders and shooting affrays." Suicides by carbolic acid have decreased from 63 in the first half of the year to 43 in the last half, as a result of the ordinance regulating the sale of the poison, passed by the City Council last March, the Coroner says. Of the 3,821 inquests held during the year, 575 cases were due to the Iroquois fire, 426 were suicides, 382 due to railroad accidents, 208 to alcoholism, 140 to street car accidents, 228 to falls. Accidental drowning caused 83 deaths within the county, undetermined drowning 86 deaths, and burns 86 deaths. Of the 382 railroad fatalities, 141 occurred at crossings, and 144 of the number killed were railroad employees. Forty deaths occurred from tetanus, 17 of the cases being due to stepping upon a rusty nail or wire splinter. Suicides were greatest in July and August, there being 42 in each of these months. Suicides by poisoning numbered 146, and 97 of these were from carbolic acid. On the charge of murder, 96 persons were held to the grand jury. The total number of cases investigated in the year was 5,960.

Increase in Capacity of Cook County Hospital and Dunning Institutions.—Mr. Henry G. Foreman, retiring President of the County Board of Commissioners, says, in his report, that Cook County has completed nearly all the new buildings authorized by the bond issue of \$500,000 in the year just closed. These buildings increase the capacity at the Cook County Hospital more than one-third, and at the Dunning Institutions more than one-quarter. To state the results of this work in brief form he presented the following table:

Estimated capacity.	Buildings.	Cost per capita.
220	Cottages for Consumptives,	\$182.18
160	Contagious diseases hospital,	722.25
120	Children's Hospital,	634.35
164	Three cottages for insane,	440.45
55	Farm ward for insane,	423.80
160	Pavilion (3 cottages) for insane.	331.86
879	Total and average,	\$432.80
SUMMARY.		
599	Dunning, new buildings,	\$315.06
280	County hospital, new buildings,	684.70

Of these new buildings the only ones not completed at the beginning of 1905 are the pavilion for the insane at Dunning and the children's building at the Cook County Hospital. But the others are well advanced and soon will be in service. The old hospital for consumptives at Dunning has been remodeled into a splendid hospital for the physically sick insane. In addition, the county erected at Dunning, at a cost of more than \$16,000, a morgue and pathological building, so that the bodies of the

claimed dead may be kept decently until moved, and so that the study of perplexing diseases may be carried on for the benefit of humanity at large. Taking up the charity work, the Cook County Hospital treated during the year more than 22,000 patients, and the county agent gave relief to 7,650 families.

GENERAL.

Sanitation in Cuba.—The first act of the House on the resumption of the session of the Congress, January 9, in Havana, was the passage of the appropriation for the immediate sanitation of Cuban cities, the amount of which was raised by the Senate to \$326,000. The vote on the passage of the bill was 23 to 15.

Tuberculosis in Vermont.—The new state tuberculosis commission will hold meetings in the principal towns in every county at which special information for the benefit of physicians will be given and addresses explaining methods of preventing the disease made to the public. The commission also will employ speakers to attend the meetings held throughout the State by the state board of agriculture.

Fifty Years a Subscriber.—Dr. Joseph W. Edwards, of Mendota, Ill., writes: "I am compelled now to discontinue my subscription to the *American Journal of the Medical Sciences* and the *MEDICAL NEWS*. You will see I have been a subscriber for fifty years. I have discontinued active practice of my profession—a country practitioner. I am indeed sorry to discontinue their weekly and monthly visits after so many years. However the time has come." Dr. Edwards graduated at the Rush Medical College a half century ago and since that date has stood for the most worthy traditions of medicine in his State. To expressions of our regret at the loss of so esteemed and loyal a patron we wish to add congratulations upon the accomplishment of a long and honorable career and wish Dr. Edwards many years of happy life in which to enjoy the well-earned rest from his professional labors.

To Improve Medical Corps.—President Roosevelt sent to the Senate last Monday a message urging the passage of two bills providing for the reorganization of the medical and ordnance corps of the army. "I am satisfied," said the President, "the medical corps is much too small for the needs of the present army, and therefore very much too small for its successful expansion in time of war to meet the needs of an enlarged army, and, in addition, to furnish the volunteer service a certain number of officers trained in medical administration. If the medical department is left as it is no amount of wisdom or efficiency in its administration would prevent a complete breakdown in the event of a serious war. "It is reported to me that the ordnance corps is in a position of disadvantage; that its personnel is inadequate to the performance of its duties with which it is charged, and that, under existing conditions, it is unable to recruit its numbers with officers of the class necessary for the conduct of its very technical work." Both bills referred to by Mr. Roosevelt have passed the Senate and are now in the House.

Public Health Association.—More than a hundred professors, physicians, sanitary officers and experts, the large majority of them from the United States, have arrived in Havana to attend the annual meeting of the American Public Health Association. Owing to the cool wave which prevails at the present time the Northern visitors are not finding their winter clothing uncomfortable. The sessions of the main association began Tuesday last.

The first meeting of the Laboratory Section opened last Monday with fifty members, presided over by the

chairman, Dr. V. A. Moore, of Cornell University. The session was devoted to "Water and Sewage." Mr. G. W. Fuller, of New York, Chairman of the Committee on Standard Methods of Water Analysis, submitted an elaborate report on the changes and improvements in the methods being used in bacteriological tests of water. The report was ordered to be distributed to bacteriologists in Europe and America. In the afternoon the Laboratory Section discussed the Water Analysis Committee's recommendations, listened to an address by the chairman, Dr. V. A. Moore; heard reports of committees on the variety of technical subjects and several bacteriological papers, witnessed some demonstrations and inspected the work of the General Wood Laboratory, in which the sections were held. The election of the laboratory section resulted as follows: Chairman, Dr. W. H. Park, New York; Vice-Chairman, H. W. Clark, Boston, and Recorder, Dr. H. D. Pease, Albany.

Cancer Research Reports.—We learn from the daily press that a further report of the Harvard Commission has been issued in which the opinion is expressed that cancer is not hereditary and that it can be best cured by the knife. The research has been made with a fund of \$100,000 left by Mrs. Caroline Brewer Croft to Harvard, for this specific purpose. A member of her family died of cancer and this caused her to leave money, hoping to benefit mankind by having a corps of experts thoroughly investigate the subject. Those who form the commission are Dr. E. H. Nichols, Dr. F. B. Mallory, Dr. Edwin A. Locke, Dr. Charles J. White, Dr. W. H. Robey, Jr., Roxbury; Dr. Tyzzer and Dr. Weis, now of New Orleans. Dr. Nichols, who has charge of the laboratory work, which was done at Harvard Medical College and Massachusetts General Hospital, said: "Our work thus far has been to find the cause or origin of cancer, and we have been unable to do so, although we have exploded popular theories. When we know what life is I think we will then know what cancer is. No more is known about its origin now than at the beginning of the Christian era. It is a supreme mystery. On present lines of investigation the cause of true cancer will never be learned. Our only hope is in some new method. No discovery has been made which offers any hope of cure of cancer which begins to compare with the surgeon's knife."

Tuberculosis in Boston.—In a long and convincing letter to the Boston *Herald* of January 9, Dr. W. T. Councilman spoke on the tuberculosis problem in Boston. He said that during the past year more than 1,227 deaths had occurred from this disease, and that 2,100 cases had been reported to the board of health. He then discussed, in a manner to be clearly understood by every one, the cause of tuberculosis, the pathology of the disease, its insidious character and its dangers even while there may be no symptoms. The disease has existed so long that it has come to be looked on as a necessary evil and as a part of the general scheme of nature. He dwelt on the three factors to be employed in fighting it, fresh air, sunlight and food. He said that although Boston had an excellent hospital, though small, for treating the tuberculous, at present one had to be either a pauper or a criminal to be admitted. He went over in detail the present state of things at Long Island Almshouse and Hospital, and spoke of the crying need of a large plant where the sick and respectable poor, who could pay a part at least of their expenses, could be sent and treated. Long Island, in his opinion, was an ideal place for a large hospital. By removing the paupers at present in the almshouse to the almshouse in Charlestown, which could easily be arranged, two buildings now used as dormitories would be left empty

which could easily be altered into hospital wards. The fact that this island is only one-half hour's boat ride from Boston, that it is large, and completely isolated made it a splendid locality for the carrying out of some such scheme as he proposed. At present the wards are overcrowded and a separation of acute from chronic lung cases was impossible.

Tuberculosis in Maryland.—A state association for the prevention and relief of tuberculosis in Maryland was organized December 13, at the close of a mass meeting held in McCoy Hall, Johns Hopkins University. This association may be accounted one of the tangible accomplishments of the state commission, which has been working for almost three years to cultivate a popular interest and sense of responsibility in regard to the subject of tuberculosis. By its bills before the legislature, by its admirable report on the prevalence and economic aspects of tuberculosis in Maryland, and perhaps most of all by the tuberculosis exhibit which was held last winter in Baltimore and has since been copied on a smaller scale in other places, the commission prepared the way for a cordial response to the invitation it sent out for the meeting this month. Dr. William Osler, the recently appointed Regius Professor of Medicine in Oxford University, presided at the meeting. The principal addresses of the evening were by Dr. Edward O. Otis, of Boston, who described the methods of the Boston association; Dr. W. S. Mayer and Dr. William H. Welch, both of Baltimore, who spoke of the need for organized private effort in Maryland, the results to be accomplished and the way to accomplish them; and Dr. Henry Barton Jacobs, Secretary of the National Association for the Study and Prevention of Tuberculosis, who gave an account of the origin and hopes of that body. The audience was a representative one, composed of physicians, social workers, and many men and women with a less professional interest in the subject discussed. Before the meeting, membership cards were distributed; many of these were returned signed at the close of the evening. A constitution was adopted and the following officers elected: President, Dr. Henry Barton Jacobs; Secretary, Dr. Joseph S. Ames; Treasurer, David Hutzler; Vice-Presidents, Governor Edward Warfield, Mayor E. Clay Timanus, Cardinal Gibbons, Lloyd Lowndes, of Cumberland; John Walter Smith, Snow Hill; Dr. D. C. Gilman, Michael Jenkins and Eugene Levering.

Boston Medical Library.—The last meeting of the Boston Medical Library in conjunction with the Suffolk District Branch of the Massachusetts Medical Society, was held last Wednesday at the Library. Dr. F. B. Harrington was in the chair; the subject for discussion was "The Treatment of Appendicitis." Dr. Harrington spoke on the "Choice of an Incision." By means of charts and diagrams he illustrated all the well known methods of procedure, dwelling briefly on the advantages of each. In his own practice he always tries to have the drainage canal outside the coats of intestines so that one wall at least is made up by the parietal peritoneum; also he never cross-cuts a muscle or a fascia if possible to do otherwise; his favorite incision for anything but the so-called interval operation was the modified McBurney or extended McBurney incision. The dangers of hernia from the cut in the median line were dwelt on. In cases of doubtful diagnosis he advised going through the right rectus muscle. Dr. Fred. Murphy described some experiments he had done on cats with regard to peritoneal drainage. Under full anesthesia, an incision was made low down in the abdomen and drains of various kinds inserted in the different cases—gauze, cigarette, rubber and glass tubes, etc. A variable

time after this a higher opening was made and a solution of carmine-colored melted gelatin poured into the abdominal cavity; at autopsy some time later it was then ascertained how far the drain previously inserted had been walled off and how far it acted as a drain of the entire peritoneal cavity. His results led him to believe that only for a short time were the drains of any value as regards general peritoneal drainage.

Dr. Brewster spoke on the subject of "Immediate Operations vs. Delay." He was strongly of the opinion that in all cases save in strictly "internal operations" immediate operation was indicated in almost every instance; the mortality of mild acute cases was very low, while no one could tell what would happen in case of a delayed operation; the more cases he saw, the less was he willing to wait. Tables made from 1,000 cases of Ochsner and his own cases, show low mortality figures.

Dr. C. A. Porter said that he thought the tendency to delay was rather on the increase with a consequent danger of misapplication of the Ochsner treatment.

Dr. M. H. Richardson spoke in favor of immediate operation and cited personal cases and statistics.

Dr. R. H. Fitz spoke on the general subject of appendicitis; in the early days of this disease he mentioned Dr. Honans, of Boston, and Dr. Cutter, of Waltham, as men who were pioneers in the operative treatment and to whom too little credit was given. He thought the term "immediate operation" a misleading one; he, while favoring operative measures thought there were cases in which a few hours careful observation in the hands of a good man was wiser than operating at the earliest possible moment.

Alcohol and Tuberculosis.—In an urgent letter to the *New York Times*, Dr. S. A. Knopf writes: "Alcohol for Tuberculosis. 'Whisky, Beer, and Wine Useful for Consumptives,' says Dr. Wiley." Under this heading, in your esteemed issue of yesterday, I read a report of the meeting of the American Association for the Advancement of Science. In this report it is alleged that Dr. W. H. Wiley, the distinguished Chief Chemist of the Department of Agriculture, had said that 'among the food material which had justly attained a high place as nutriment for persons troubled with tuberculosis was alcohol.' That 'alcohol was most commonly used in the forms of beer, wine, whisky, and brandy,' and that 'in many maladies whisky and brandy had apparently been used to great advantage, and doubtless such was the case in tuberculosis.'

"Whether the distinguished scientist has been reported correctly or incorrectly, the harm that is done by such announcements in the public press seems to me incalculable. As one interested in the solution of the tuberculosis problem, I feel it my duty to protest and, if possible, correct an erroneous impression before it takes a stronger foothold in the minds of the people.

"Extensive experience in the treatment of tuberculosis has convinced me that alcohol can never be considered a food for the consumptive. There is so little food value in alcohol, and it is so easy to overstep the amount that can be assimilated by the system, in which case the deleterious effects far exceed the benefit derived, that it is not safe to recommend it as a food at all. It may be possible to apparently arrest the disease in a consumptive by making a drunkard of him, but this will not be lasting; on the contrary, the disease will soon break out again, and the general system (liver, kidney, heart, etc.), will have suffered by the secondary effects of the excess of alcohol to such an extent that all the natural resisting power to the new invasion of the tubercle bacilli will have been destroyed.

"To preach to the masses that alcohol is a food in tuberculosis is to my mind an error so grave, so fearfully dangerous, that I repeat that I cannot let it pass without the strongest possible protest. The average person will say that if good whisky will cure consumption, it will certainly also prevent it. Alcoholism, with its fearful consequences, will be on the increase. A statement praising alcohol as a food in tuberculosis, if really made by that distinguished Government official, will be used as a means to advertise all brands of strongly alcoholic beverages as 'sure cure for consumption.'

"We are only just beginning in our anti-tuberculosis campaign to educate the people to the fact that alcohol never was a food for consumptives, never cured and never will cure tuberculosis. We are cautioning all our consumptive poor against the use of alcohol, and urging them to spend their money for milk, eggs, and meat instead. Not only will the poor consumptive himself derive no benefit from taking alcohol as food, but often the children must suffer for it. It has happened again and again that because some one had said that alcohol was good for consumption, wife or children were in want of food because the consumptive husband and father needed so much money for 'the sure whisky cure.'

"No unbiased physician will deny that in a few isolated cases a judiciously prescribed dose of alcohol may do good to combat certain symptoms in consumption.

"Large doses, often repeated, are absolutely harmful in tuberculosis, and I venture to say, in all other diseases as well. In my private and hospital work alcohol is prescribed for consumptives with the same care and prudence as if we were dealing with poisonous substances, and I know that the colleagues known to me, who are engaged in this kind of work, follow the same rule. Alcohol does not cure tuberculosis! Used in excess and injudiciously administered, it surely retards recovery. Alcohol used in excess predisposes to consumption! Statistics in hospitals for tuberculosis and scrofulous children show that the majority of them had parents addicted to the excessive use of alcohol."

OBITUARY.

Dr. CHURCHILL CARMALT died last Sunday afternoon at his home No. 130 East Thirty-sixth Street, of acute pneumonia following the grip after an illness of three days. Dr. Carmalt was born in Susquehanna County, Pennsylvania, and was educated at Harvard University, from which he was graduated fourth in his class in 1887. He received his medical education at the College of Physicians and Surgeons, from which he was graduated in 1891. In his practice Dr. Carmalt was associated with the late Dr. T. Gaillard Thomas. Dr. Carmalt was but 39 years of age and was one of the most promising of the younger surgeons of New York City.

Dr. GEORGE V. CONVERY, for many years a sanitary inspector for the Brooklyn Health Department, died last week at his home, No. 47 Fourth Avenue, in that borough. His duty was to inspect the vessels on Brooklyn's long water front.

EDWARD H. WEIL, who has been a member of the Board of Trustees of the Jefferson Medical College and Hospital, died at his home, 1720 Pine Street, Philadelphia, January 3, of carcinoma of the liver.

Yellow Fever from Panama.—There arrived in New York harbor this week a patient with yellow fever from the Canal Zone. He had contracted the disease from his wife, who died from the malady.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, December 23, 1904.

THE MEDICAL SERVICE OF THE ARMY—MEDICAL OFFICERS AND THE MILITARY CLUBS—THE STUDY OF TROPICAL DISEASES—THE STERILIZATION OF THE UNFIT.

THIS day the appointment is announced of Surgeon General Alfred Henry Keogh, Commander of the Bath, as Director General of the Medical Services of the British Army. This appointment means that the party of progress in the councils of the Army has triumphed over the "old gang," as Randolph Churchill would have called them, who have been striving to keep the medical service under the military jackboot. For weeks past there have been alarms and excursions on the stage of officialdom. The Secretary of State for War has been harrassed on both sides; military officers of the highest position have threatened to resign and influential ladies have put forth their powers of fascination in favor of undoubted seniority but less indubitable merits. The King was known to be on the side of progress, but the military people felt that the matter was one of life or death to them and stuck to their guns with a courage worthy of a better cause. The tangle seemed hopeless when the Prime Minister intervened and told the Secretary of State for War that if he could not manage to unravel the knot, the Cabinet would have to do it for him. So in defiance of tradition and wirepulling and the feminine influence which was all powerful with Lord Roberts, a comparatively junior man has been placed at the head of the medical service of the British army. Keogh is only forty-eight years of age but he has had an exceptionally wide range of experience. His work in the South African War was so conspicuously good that it won for him not merely commendation but promotion, rapid almost, if not quite beyond precedent. He was made Deputy Director-General with the official rank of Surgeon General while still only a Lieutenant-Colonel. Naturally in a body like the Royal Army Medical Corps, which is still largely composed of men who entered the Army under the old order of things, when an officer had only to keep in good odor with his military superiors to be carried automatically to the highest posts, the advancement so far out of his turn of a brilliant young man, was viewed with dislike and jealousy. Keogh's administrative ability and strength of character tempered by tact have to a large extent silenced the grumblers. He may be trusted to work well and loyally with the Advisory Board whose Chairman he is *ex officio*. This in itself will make for progress and efficiency, for under the present system a Director-General, who is wedded to militarism in the medical administration of the Army can, if he be so disposed, practically burke the recommendations of the Advisory Board.

In my last letter it was stated that in a recent election at the Junior United Service Club a number of medical officers had been blackballed by a small clique. A special meeting of the members was held on December 11 at which some two hundred were present. The wholesale blackballing of classes of officers was unanimously condemned in words of no uncertain sound, and a full and graceful apology was tendered to the Royal Army Medical Corps and to the profession to which its officers

belong. The act was all the more gratifying because it was entirely spontaneous, the doctors not having moved at all in the matter. The incident may therefore be looked upon as closed in an entirely satisfactory manner.

The establishment of chairs of protozoology and helminthology in the London School of Tropical Medicine which has just been announced marks an important step forward in the study of tropical pathology in this country. The new departure is largely to the action of Mr. Lyttleton, the Secretary of State for the Colonies, who has inherited the enlightened sympathy shown by Mr. Chamberlain in the development of tropical medicine. The funds have, owing to his influence, been provided by subsidies from Colonial Governments. I understand that a still more important step is in contemplation. Mr. Lyttleton hopes to induce the home government to found and endow a chair of protozoology in the University of London. At present British workers have to look for the most part to Germany and France for guidance in that province of research. The new chairs may be taken as an indication that a sense of the importance of the subject has at length been awakened in those who have the destinies of our colonies in their hands. The salaries offered—\$1,250, rising by annual increments rapidly to \$2,500—compare favorably with those paid to teachers of purely scientific subjects in most of the medical schools of London, and should attract competent men to devote themselves to original work in a field of research which there has hitherto been little inducement to cultivate. The London School of Tropical Medicine which was called into being by the Seaman's Hospital Society on the inspiration of Mr. Chamberlain some five years ago is now a thriving institution. About forty students pass through its courses every session. Each session lasts two months and there are three in the year. The annual output of men and women specially trained for medical practice and research in the tropics is therefore considerable.

Some time ago mention was made of a suggestion put forward in a pamphlet by Dr. R. R. Rentoul, of Liverpool, that the true means of preventing degeneracy, physical and mental, was to be found in surgical sterilization of the unfit. The proposal was received with indifference by the public and the profession and with ridicule by the medical press. Dr. Rentoul, who is one of our medical "cranks," has the dull pertinacity of a man to whom the saving sense of humor has been denied. He brought his proposal forward again the other evening before the Medicolegal Society. It met with little favor. The opinion was pretty generally expressed that before anything could be done some agreement must be arrived at as to the cases in which the remedy should be applied. The remedy itself was considered neither efficacious nor practicable. Mr. G. Bernard Shaw, the dramatist and social reformer, with whom I do not often agree, seemed to me for once to go to the heart of the matter. He held that the difficulty they were in was that they did not know what a degenerate was. It was nonsense to include in the table which Dr. Rentoul had prepared epileptics and backward children, who sometimes turned out very well. One gentleman had said that soon there would be one lunatic to each sane person. There would be no difficulty then, for in time there would be nine lunatics to one sane person, and then, of course,

the nine persons would proceed to shut up the one sane person as a lunatic. Insanity was an extremely relative term. The medical profession did not know yet what heredity was. There was no question which was so important as population, but what they had to do with was the quality of the population. If they thought they could settle this population question by going, as it were, into a flower garden and snipping off all unlikely-looking buds, they were greatly mistaken. Lord Russell said he feared that a good case had been spoiled by overstatement. Sir William Collins, who is a physician as well as one of the leading spirits of the London County Council, said, the ethical aspects of the proposed treatment had not been dealt with by Dr. Rentoul. What he asked would be the conditions in society with sterilized criminal lunatics hovering about at large. The methods proposed might be criticized from the surgical point of view. Sir William Collins concluded by saying he would lift up his hand against compulsory mutilation.

SPECIAL ARTICLE.

AN ANTI-CARCINOMA SERUM.

BY HARVEY R. GAYLORD, M.D., G. H. A. CLOWES, PH.D.
AND F. W. BAESLACK, B.A.,

OF BUFFALO, N. Y.

PRELIMINARY REPORT ON THE PRESENCE OF AN IMMUNE BODY IN THE BLOOD OF MICE SPONTANEOUSLY RECOVERED FROM CANCER (ADENO-CARCINOMA; JENSEN) AND THE EFFECT OF THIS IMMUNE SERUM UPON GROWING TUMORS IN MICE INFECTED WITH THE SAME MATERIAL.

In the latter part of February one of us (Gaylord) visited Copenhagen and received through the courtesy of C. O. Jensen, Professor in the Veterinarian and Agricultural High School in Copenhagen, two white mice with actively growing tumors, inoculated from a strain of mice infected with adenocarcinoma, described by Jensen in the *Centralblatt für Bacteriologie, Erste Abt.*, Vol. XXXIV. These mice were brought successfully as far as New York, but between New York and Buffalo both died. One of them was used on the day following death for the inoculation of twelve mice. The second mouse was placed on ice and on the third day following death the tumor was used to inoculate twenty-five white mice obtained from a source outside of Buffalo. All of the inoculations from the first mouse were unsuccessful. From the second mouse 60 per cent. of the inoculations were successful, thus giving us the material for further inoculation. From that time to the present we have succeeded in having constantly on hand a number of infected mice in various stages of the disease. Our transplantations were uniformly successful, the percentage of "takes" varying from 20 to 70 per cent.

In September and October we noted, for the first time in a number of mice that the tumors which had grown to a demonstrable size, ceased growing and underwent a form of spontaneous retrogression which terminated in the disappearance of the tumor without recurrence. Shortly after the observation of these facts a combination of circumstances resulted in our having, for a period of time, but a few available tumor mice. For this reason certain experiments in immunity which had been previously commenced were suspended. In the latter part of November the supply of mice was sufficient to resume the immunity experiments. In the meantime

we had succeeded in getting a large number of mice in which the transplanted tumor grew with unusual rapidity and great virulence, showing no tendency to retrogression. For the purpose of determining whether the blood of the mice that had recovered spontaneously possessed any immunizing qualities, a series of experiments was carried out with the following results:

The blood-serum of mice which had recovered spontaneously from tumors possessed a power, when injected into mice infected with growing tumors of inhibiting the growth of large tumors and causing the retrogression of smaller tumors, leaving the animal possessed of an immunity which prevents recurrence of the growth. The degree of immunity in the mice thus far tested varies within considerable limits, the most marked illustration of its activity being found in one mouse whose blood-serum injected in a single dose of .2 c.c. caused the rapid retrogression and entire disappearance of two tumors in one animal and one in another, all of which were as large as peas, in the space of three days. The same serum injected into a mouse with a tumor the size of a small cherry (about two grams), caused a noticeable reduction in size of the tumor, which remained stationary for ten days, when an operation for the removal of a portion of it resulted in a return of activity to the growth. The latter part of this experiment will be dealt with in our final publication.

All of these experiments were controlled with mice inoculated at the same time, the tumors of which were smaller than those of the mice treated with the immune serum. These control mice received doses of normal mouse serum equal in volume to the doses of immune serum referred to above. In every case the tumors in the control mice developed rapidly and led in the course of three or four weeks to the death of the animal. In spite of the fact that the control tumors were invariably smaller than those used for the immune serum at the commencement of each experiment, in the course of a week or ten days the control tumors were found to be larger, and up to the date of making this announcement, while several control mice have died of their tumors, not a single mouse treated with immune serum has so far succumbed. In those cases in which the tumor was too large or the immune serum too weak to effect a cure, the marked retardation in the development of the tumor was always associated with a diminution in the cachectic symptoms invariably exhibited by the tumor mice in the last stages.

The second stage of our work has shown that the mice cured by injection with the immune serum referred to above, possess in like manner active immune qualities in their serum, which thus far have proved capable of causing the disappearance of small tumors and the inhibition of larger ones.

The test tube experiments carried out to determine the nature of this serum, and such information as we have been able to obtain as to the mechanism of its activity from sections of tumors inhibited and cured, lead us to the conclusion that in all probability we are not dealing with a cytolytic serum. We wish, however, to reserve our opinion until we have accumulated more data. Sections of tumors which have undergone partial spontaneous retrogression show that the changes in the epithelium are closely allied to simple atrophy. The connective tissue stroma of the tumor increases greatly in amount and in the last stages nothing is found but a connective tissue nodule with occasional pseudogiant cells produced by coalescence of the remaining rests of

epithelium, similar to those described by Becker and Petersen as an evidence of spontaneous healing at the margin of cancer in human individuals. The changes in the tumors inhibited in growths show about the periphery a marked increase in the connective tissue stroma with extensive round-celled infiltration, characteristics which are not found in the growing tumors. At the margin of these tumors one finds an actual disintegration of cancer nests, atrophy of the epithelium, giant-cell formation and final disintegration. The remains of the small tumors, which have disappeared under the influence of the immune serum, consist of minute masses of connective tissue which in the later stages present the characteristics of ordinary organizing connective tissue. A tumor which received but one injection of immune serum from a mouse cured of a small tumor by the activity of serum from a spontaneously cured mouse and which decreased from the size of a small pea to that of a grain of rice within thirty-six hours, and which remained stationary for ten days, was found on examination to consist of a mass of newly-formed connective tissue surrounding the remnants of atrophied and disintegrating epithelium. In this case the evidence of disintegration of the epithelium was greater than that found in the tumors spontaneously recovered. A description of the histological characteristics will show that the changes in the epithelium are similar in principle, differing only in the rapidity of the process. The changes found in the spontaneously cured tumors and in those inhibited or cured with the immune serum, correspond to the changes already described by several authors as an attempt at spontaneous cure in human cancers.

A review of the literature shows that authentic cases of spontaneous cure of cancer in human beings are not unknown and the correlation of our histological findings with those already noted in man lead us to the conclusion that a similar immunity undoubtedly exists against human cancer. Although our work thus far has shown us that great difficulties will undoubtedly be encountered, it is perhaps not too much to hope that a careful analysis of the facts obtained in our experimentation on mice may ultimately lead to a practical application of these facts with a solution of the question of the curability of cancer in human beings.

SOCIETY PROCEEDINGS.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

(Continued from Page 47.)

UNVEILING EXERCISES.

The monument erected by the Association to its founder, the late Dr. W. E. B. Davis, was unveiled in Capitol Park, with fitting ceremonies, Wednesday, December 14, at 11 o'clock. About five thousand people attended these exercises, including the members of the Association. After an invocation by Rev. Dr. L. S. Handley, Dr. Chas. M. Rosser, of Dallas, Texas, was introduced, and delivered the address of presentation. The statue was unveiled by Elizabeth and Margaret Davis, the little daughters of the beloved physician. Dr. R. M. Cunningham, Acting Governor of the State of Alabama, accepted the statue in behalf of the State in an eloquent address. The statue, in behalf of the city, was accepted by Hon. John C. Forney, the representative of Mayor Drennan, who was unavoidably absent.

The Management of Acute General Peritonitis.—Dr. J. Garland Sherrill, of Louisville, Ky., considered two forms of infection: (1) Acute septic peritonitis, in which the poison was so intense that the patient died from a profound toxemia before the local changes had progressed to the point of pus formation. (2) This type was general suppurative peritonitis, in which pus was found free in the peritoneal cavity without any localization of the process. The two forms resulted from infection following perforations of the alimentary canal, rupture of the urinary or gall-bladder, ileus, abdominal operations, puerperal infection, and disease of the ovaries and tubes. Many cases, especially of the septic type, resulted fatally regardless of the time they were seen or the treatment employed, while some responded to medical and more to promptly applied surgical measures. The various methods of medical treatment were considered, and the position taken that these cases were surgical, except where operation was refused and the patient's condition would not permit surgical interference. Under such circumstances the medical treatment should be planned with reference to the causative condition, if this could be determined, and a distinction should be made between perforations of the stomach and those of the intestine, and also those cases in which there was reason to believe the intestinal wall was intact. In the first, emphasis was laid upon absolute rest of the stomach to limit leakage; rectal lavage and nutrient enemata were advised. In the second class (intestinal perforations) gastric lavage, small rectal enemata to unload the lower bowel could be employed, and opium used freely while the patient was nourished per rectum. In the third class with an intact intestine, lavage, gastric and rectal purgation and nutrient enemata were recommended. Heat and cold were considered the best topical applications, and the patient's position should be suited to the location of the causative lesion. In considering the surgical treatment of this disease, much stress was placed upon early operation as a measure for the prevention of general peritonitis, while the process was yet localized. The outcome of a given case would depend upon the following factors: (1) The virulence of the infection; (2) the quantity of the infecting medium; (3) the resistance of the patient; (4) the activity of the organs of elimination; (5) the time at which the patient came to operation; (6) the rapidity and thoroughness of the surgical procedure. It seemed to the writer that the special technic of the operation was of less importance than the dexterity of the surgeon and the care with which he did his work. The author found that by flushing he could best free the peritoneum of infectious material, and usually drained. The patient should have the usual treatment given all abdominal cases.

Some Further Advances in Renal Surgery.—Dr. John B. Murphy, of Chicago, made a forcible plea for more conservative surgical work on the kidney and ureters in the future, saying that surgeons must consider the importance of preservation of any portion of a kidney that was still in a condition to functionate, on account of the enormous mortality associated with the removal of this organ. The mortality in the past following the removal of a kidney that was secreting practically the normal amount of urine varied from 20 to 35 per cent. He reported six cases of conservative operations on the kidney. In all of them the enlargement of the pelvis of the kidney was almost equivalent to, and in many instances larger than, the kidney itself. In cases of great dilatation of the pelvis of the kidney, formerly it was his custom to remove the kidney until he realized that it was practically a normally secreting

organ, and that the dilatation of the pelvis was due to ureteral obstruction, and that there was no good reason for taking out the kidney when the sac was removed, regardless of the position of attachment of the ureter to the sac, as this varied in every case. He believed in connection with surgery of the kidney, that surgeons were coming to a time when they would examine the kidney carefully, cautiously, and then decide, as in certain lesions of the stomach, that this or that portion shall be removed and the remaining portion husbanded.

Four Cases of Vesical Diverticula Requiring Operation.—Dr. Hugh H. Young, of Baltimore, Md., read a paper on this subject. He said that a patient died after obscure bladder symptoms, and autopsy showed seven diverticula, the largest about five inches in diameter, communicating with the bladder by small orifices. Both ureters were compressed by the diverticulum, and hydro-ureter and hydropelvis had resulted. The patient died of uremia. Since then the operator has had four cases of vesical diverticula where operation was advisable, and was performed with success in each case. In two cases the diverticula were larger than an orange, in the others smaller. In one case the ureter was compressed by the diverticulum and intermittent attacks of renal colic resulted. In one case the diverticulum lay in the urachus and became constricted at its orifice several times a week, producing severe tenesmus in the region of the umbilicus. In three of the cases the disease developed early in life, and in only one was an enlarged prostate the cause of the diverticulum. Careful study of the literature showed that only three cases had been operated radically, namely, one by Czerny—excision by transverse abdominal incision, transplantation of the ureter, development of pyonephrosis, nephrectomy, and final cure. One by Riedel, suprapubic incision, death from collapse. One by Pagenstecher, parasacral extirpation, resection of ureter, kidney involvement, result improvement, with fistula. The writer's four cases were all living and in good condition. In three cases the diverticula were completely excised, but ureteral transplantation was avoided by a plastic method. Renal infection was avoided, and no fistulae resulted. Study of autopsy specimens showed that diverticula might be congenital or acquired, the latter due to obstruction, stricture or enlarged prostate. They developed most commonly near the ureteral orifices, and by pressure caused dilatation of the ureters and kidneys, and death followed from uremia. In many cases removal of an enlarged prostate of stricture was all that was necessary, but if the diverticula were large or pressed upon the ureters, or were congenital, and independent of obstruction, excision should be performed; suprapubic extraperitoneal, extravascular enucleation of the sacculi, with suture of the bladder at the site of the diverticular orifice being the best method.

Ultimate Results Obtained by Conservative Perineal Prostatectomy in Seventy-five Cases.—Dr. Young also read a paper with this title. In this series there were 5 cases over eighty years, one eighty-seven years of age, with one death five weeks after the operation in a man aged eighty-four years. Two other deaths, neither attributable to the operation, occurred, each in the third week, one in a patient walking about and ready to go home, from pulmonary thrombosis, and the other in a man, seventy-seven years of age, who had been uremic for several weeks, and autopsy showed double pyohydronephrosis. The innocuousness of the operation was thus shown. The use of the author's double-bladed metal tractor was of great help in steadying the prostate for the incisions, drawing it down for a complete enucleation, enabling the operator to deliver

and remove even large middle lobes without tearing away the mucous membrane of the bladder or urethra, or the ejaculatory ducts. The advisability of preserving the floor of the urethra, the veru montanum, and the ejaculatory ducts in men whose sexual powers were well preserved (and these represented over 50 per cent. of the cases), was shown by the impotence which followed in nearly all cases those operations like Albarran's and Murphy's, in which the floor of the urethra and duct were deliberately destroyed, and the results obtained in these seventy-five cases in which in a large proportion of them the sexual power and ejaculation were preserved, and even spermatozoa present in the semen afterward. The preservation of the prostatic urethra intact did away with the necessity of postoperative passage of sounds, greatly hastened the closure of the perineourinary fistula (all urine passing through the penis after the sixth or eighth day in many cases), and was possibly responsible for the absence of incontinence, and the early establishment of normal urination. The frequent presence of epididymitis in Albarran's cases led to the routine ligation of the vasa deferentia in the groins after he had finished perineal prostatectomy by his method. The great rarity of testicle infection after the author's technic showed the advisability of not tearing away the terminal valvelike portions of the ejaculatory duct. The absence of mortality from the operation showed that the advantage gained by a nice exposure of the prostate by blunt dissection, through an inverted V cutaneous incision, and proper traction of the prostate by an intraurethral tractor with the consequent ability to enucleate the lobes without morcellement, and spare useful and non-obstructive structures—prostatic urethra, and ejaculatory duct—was well worth the slight addition to the length of the operation as performed by a blind, tear-out-what-will-come-out technic.

When Shall We Resect in Tuberculous Disease of Joints?—Dr. C. H. Caldwell, of Cincinnati, Ohio, read a paper on this subject. His judgment as to the advisability of resort to resection in a given case of tuberculous joint disease would be influenced by many considerations, and among them the following: (1) The joint itself, its anatomy and general characteristics. (2) The part it bore as a weight-bearer. (3) The degree of disability incurred by its involvement. (4) The relation of the joint to surrounding soft parts (its accessibility, and the readiness with which it admitted of drainage). (5) The degree of severity and progress of the disease as influenced by the function of the joint. (6) The results to be expected from conservative treatment. (7) The results to be expected from excision. (8) General considerations. As to the joint under consideration, somewhat would depend on whether it was a single large isolated joint, such as the knee for instance, or whether it be a smaller joint, such as the carpal or tarsal, in immediate continuity with other joints. A single tuberculous focus in the epiphysis of a long bone which was susceptible of complete immobilization stood a much better chance to undergo reparative change than would such a focus in the spongy bones of the wrist in the close proximity of synovial and ligamentous structures which favored dissemination and persistence of the disease. To this close approximation of the surfaces primarily affected in these joints, he was inclined to attribute the frequent resistance of disease in the elbow joint even when completely immobilized, and in the hip, where traction was not carried to the point of distraction of the diseased surfaces. Only when direct traction in the latter instance was supplemented by lateral traction was it at all likely that distraction of these surfaces occurred. In the

case of the elbow, he knew of no method by which distraction of the surfaces of the sigmoid cavity of the ulna and the inner condyle of the humerus could be effected. Taking it for granted that the vast majority of cases of joint tuberculosis had primary epiphyseal bone lesions, there was but little doubt that could we but see these cases before the stage of fibrillation of cartilage, a condition which preceded erosion for some time, conservative treatment might be sufficient to effect a cure. The part which a joint played as a weight-bearer, or the degree of pressure to which it might be subjected in manual occupations undoubtedly influenced greatly the development of the disease. The absence of both factors, weight-bearing and pressure, accounted for the comparative immunity of the shoulder-joint. In disease of joints at the upper extremity, immobility and protection might be effected with but little difficulty, and the disability was such only as was incurred by the disease of the limb. The result to be expected from conservative treatment might be divided into three classes—ideal, satisfactory, and unsatisfactory. An ideal result was where after a reasonably long period of treatment a cure was obtained with no limitation or but slight limitation of movement, and no deformity. Under satisfactory results might be classed those which after a reasonable period of treatment were cured with a stiff joint, or one in which a slight range of motion was possible, without shortening or malposition, and in which if there had been abscess or sinus formation, the sinuses had healed. Under satisfactory results might be classed those which after a reasonable period of treatment either showed no tendency to get well, or might be said to have recovered with sinuses still weeping, with a tendency to fatigue on exertion, with more than an average amount of shortening, and with deformity to a greater or less degree. The absence of any active symptoms of disease, pain, increased temperature or muscular rigidity, placed these in the category of cured cases, but cured with unsatisfactory results. The results from the resection of the hip were of necessity unsatisfactory when complete, as with ablation of the head and neck of the femur, one left no *point d'appui* for the femur, and there must be a greater or less amount of give to it under the weight of the body. It was questionable whether resection of the hip should be undertaken except in cases of rapidly destructive epiphysitis of the femur, with possible or present involvement of the acetabulum; cases of abscess of an acute and painful nature associated with high temperature; and cases of chronic abscess which failed to get well after repeated aseptically conducted aspirations when there were obstacles to the proper drainage of the joint, such as acetabular complications, the presence of a detached head, or gelatinous tuberculous debris. The great objection to the operation in any case was the difficulty of removing all affected structures, and the unsatisfactory prosthetic results. In tuberculosis of the knee one was confronted with an entirely different problem. There was but little use of wasting time with a knee-joint in which marked osseous changes were already present, and which in spite of conservative treatment over a period of six months had shown no improvement. Resection of the knee in cases which had passed the period of adolescence had much to recommend it and but little could be said against it. In those cases too prolonged delay often meant amputation. As to resection in elbow cases, one was again confronted by the fact that results were at the best far from what one might desire. In the smaller joints, such as the wrist and carpal joints, excision must depend on individual judgment. Ankle joint and tarsal excisions were,

as a rule, very unsatisfactory. The deficiency in weight-bearing capacity rendered the results far more gratifying, and amputation was, as far as his observations went, too frequent a sequel to these operations. Several skiagrams were exhibited, illustrating the tuberculous joints, and the results of resections.

Obliteration of the Stomach by Caustic.—Dr. Samuel J. Mixer, of Boston, stated that doubtless other surgeons had seen cases of constriction of the esophagus after the ingestion of acid or strong alkalies, and also some cases of constriction of the pylorus from the same cause. It was very rare, however, to find practically the whole stomach destroyed, and this was the reason for putting the cases he had seen on record. He reported three cases in which the stomach was almost entirely obliterated by caustics.

Vaginal Cesarean Section.—Dr. C. Jeff Miller, of New Orleans, read a paper on this subject, in which he reported a case and summed up the advantages of the method as follows: (1) In severe eclampsia, when the woman is unconscious between the convulsions, the cervix rigid and elongated, and delivery imperative, it is always preferable to abdominal section, and, under proper surroundings, may be preferable to metal dilators or manual dilatation. (2) In severe cases of accidental hemorrhage, when the cervix is closed, it is safer than the other method of accouchement forcé, owing to the rapidity with which the uterus can be emptied, and should be given preference over abdominal hysterectomy, which is generally advised. (3) It may be considered in other conditions where Cesarean section is indicated, except in contracted pelvis or dystocia, arising from maternal or fetal disproportion. It has not the disadvantages of an abdominal operation; the peritoneum need not be opened unless hysterectomy is to be preferred for malignancy, and there is less shock than follows abdominal operations. (4) It is not more dangerous than attempting to deliver either by version, or forceps, when the os is not fully dilated, if done under strict aseptic precautions.

Dermoid Cysts and Fistulae of the Sacrococcygeal Region.—Dr. Lewis C. Boshier, of Richmond, Va., during the past few years had had occasion to operate on seven cases of dermoid cysts or fistulae of the sacrococcygeal region. The patients sought relief either on account of the presence of annoying exudation or after some traumatism had given rise to the formation of abscess, with the usual train of inflammatory symptoms. The cases operated on by the writer were all in male adults. After referring to the diagnosis and prognosis, the author said that the usual methods resorted to for treating inflammatory fistulous tracts would seldom result in permanent cure. Complete extirpation of the fistula and sac must be performed to prevent a recurrence. It was to be noted that this was not always possible, as in a case reported by Wette, where complete extirpation would have involved opening the spinal canal, with serious injury to the nerves.

Hematoma of the Ovary.—Dr. Magnus A. Tate, of Cincinnati, Ohio, in a paper on this subject presented a study of the cases which he had collected from the literature. These cases showed that three periods of life markedly predominate as a predisposing factor in the causation of hematomas of the ovary: (1) Before or during birth; (2) At or near the first menstrual flow; (3) Early adults or child-bearing period. In studying this variety of cases collected, he presented a few facts of importance. Klob had stated that in frequency the follicular variety was by far the commoner. Scott, in operating for ovarian disease, stated that hematomas were frequently found. In this the author concurred

and did not believe that hematomas were so rare as the paucity of case reports in literature would lead one to believe. Hemorrhage might collect in small dark patches or be so diffuse as to destroy the parenchyma or even the ovary itself. In size, hematomas varied from that of a hazelnut to a good-sized orange. In no case reported was a diagnosis positively made before section, except the one reported by Edebohls, and this diagnosis was questioned by everyone who took part in the discussion. The cases uncomplicated were free from fever, but pain was almost a constant symptom. Vaginal examination disclosed almost constant tenderness. Sometimes the ovary was fixed, and the pain frequently severe. Schultze and Riedel reported hematomas in newborn infants. Winckel saw the follicular variety of hematoma following petroleum burns, phosphorus poisoning, typhoid fever, cerebral hemorrhage, tuberculosis and heart failure. Edgar reported a case where the hematoma ruptured and caused a pelvic hematocele; and Boldt a case where the hematoma ruptured and peritonitis resulted. Two cases of hematoma were reported in which the hematomas became cystic and had twisted pedicles. Garrigues gave the history of a case associated with vicarious menstruation; Janvrin, a case of dysmenorrhea where on section there was salpingitis of both tubes, abscess of right, hematoma of left ovary; and Murray, a case of abscess of left ovary and hematoma of right. Kramer reported a case associated with purpura and epilepsy; and Edebohls, one where hysteroepilepsy complicated. Wylie had a case where electricity was the probable cause. Tate, a case following a long, tedious labor; Reamy, one where one ovary was removed and a portion of the other, and subsequently the patient had two children. Ricketts reported one associated with a large ovarian tumor, one with a dermoid, one with a suppurating appendix, one where the left hematoma was removed, the right being normal, and in one year later the right ovary had to be removed for a hematoma. Wenning operated upon a case of double hematoma, the patient suffering from excruciating pain when an examination was made. The age of child-bearing women who were afflicted with hematoma of the ovaries varied from fifteen to forty years, and the left ovary seemed more affected.

Pathogenesis and Surgical Treatment of Tuberculous Peritonitis.—Dr. William E. Stokes, of Salisbury, N. C., after dwelling on the pathogenesis, divided tuberculous peritonitis into four forms—the adhesive, suppurative, tympanitic and ascitic. He quoted extensively from the literature of the subject, referred to the modes of infection, gave synopses of cases, histological examinations, and reported six cases. After describing the surgical technic, he said that operation was contraindicated in cases of tuberculous peritonitis, whenever there was an advanced tuberculosis of the liver, lung, kidney, intestines, glands, or when the exudate within the peritoneal cavity was solid: What the actual changes in this infection of the peritoneum were, or what reaction was brought about in the local lesions and the peritoneum itself by the mere abdominal incision, remained problematical. Was it the mechanical action brought about by the air and sunlight; the increase of the peritoneal resistance, or whether after the operation a local reaction in the periphery of the tuberculous nodes took place, or an increased phagocytosis brought about absorption of the tuberculous product, with the formation of new connective tissue, as had been shown in experiments on animals, still remained unsettled. However, through this process, it was claimed that a local reaction was thereby induced, and the absorptive power of the peritoneum increased.

Treatment of Uterine Bleeding.—Dr. H. J. Boldt, of New York, read a paper with this title, in which he supplemented his former report on the use of stypticin, the name applied by its introducer, Dr. Martin Freund, to cotarnine hydrochlorate, in various cases of uterine hemorrhage, his opinion of the therapeutic value of this agent being based on seven years' experience with it. He first briefly described stypticin, which was a base obtained from narcotin by oxidation. It occurred as a micro-crystalline yellow powder, was soluble in water, and had an intensely bitter taste. A resumé of its physiological action followed. The author then cited a number of cases in which he used stypticin with marked effect, and gave also those in which it was ineffective. In 35 cases of fibromyomata, 11 were more or less benefited, while 24 were not. In one case of excessive menstruation due to an interstitial fibroid, the relief was very marked. In nine cases where hemorrhage was due to cancer of the uterus, the result was negative. Complete cure followed in from two to six days in five cases of postpuerperal bleeding after removal of retained placenta particles. In conjunction with curetting stypticin was found effective in hyperplastic endometritis, but in the glandular form results were negative. In one case out of five of retroversion-flexion of uterus with endometritis, the menorrhagia was relieved without resort to surgical intervention. In chronic retro-endometritis, five of nine cases were more or less benefited. In various forms of non-suppurative pelvic inflammation, only three out of 23 patients were not relieved by stypticin. In irregular bleeding during pregnancy stypticin had been found very beneficial, and no unfavorable symptoms had been noted. In profuse menstruation in virgins, without changes being found in pelvic organs, only five of seventeen patients were not benefited. In atypical bleeding during the climacteric period, if no pathological cause was found, stypticin usually gave a satisfactory result. The author remarked that while stypticin was not a panacea for all cases of uterine bleeding, he had found it better than any other remedy. In some instances it had practically served as a specific. If no effect at all was produced after three large doses had been given (from $2\frac{1}{2}$ to 5 grains), it was useless to continue the drug. Likewise, in fibroid, it was not recommended to continue its use if two hypodermic injections of five grains each at intervals of four to twelve hours did not cause a diminution of the hemorrhage. An important fact was that the author had never noted any harmful results from stypticin, even when administered in such large doses as five grains every three hours. In some instances it also relieved the patients of pain associated with the profuse bleeding. In instances of too profuse menstruation, the author found the best plan was to begin with one grain doses, three times daily, about one week before the expected flow, and as soon as the flow began to let the patient take $2\frac{1}{2}$ grains every three hours, to be continued during the entire period. In instances of metrorrhagia, from $2\frac{1}{2}$ to five grains might be given at intervals of from two to three hours until the bleeding was lessened; then the dose might be decreased to from one to $2\frac{1}{2}$ grains, at intervals of three to four hours. If a quick result was important, it was best to give three to five grains in a ten per cent. solution subcutaneously into the buttocks, using the customary antiseptic precautions. Because of the disagreeable taste of stypticin, it was best administered in the form of capsules, the pharmacist being ordered to put the powder dry into the capsule. It might, however, also be given in tablet form.

Some Points in the Technic of Aseptic Operating.—Dr. Henry T. Byford, of Chicago, in this paper said

he did not offer any new methods, but emphasized the necessity of more thoroughness in those already used. The method he employed consisted in (1) twenty minutes' scrubbing with green soap and water; (2) three minutes' in dilute acetic or citric or oxalic acid; (3) five minutes in strong alcohol; (4) five minutes in a $\frac{1}{2,000}$ solution of mercuric chloride in water. The author considered the use of rubber gloves open to the objection of macerating the cuticle with danger of their being punctured and allowing septic sweat to escape. He deprecated the mixing up of the steps of the preparation by using a combination of green soap and alcohol, or by dissolving the mercuric chloride in alcohol, since aqueous solutions were more efficient than alcoholic. He advised disinfection of the hands one or more times during the course of long operations. Attention was called to the necessity of unusual care in the preparation of the field of operation in operations about the pubes and vulva. He recommended absorbent rather than occlusive dressings in the dressing of the wounds after the operation.

Suprapubic Prostatectomy.—Dr. W. H. Doughty, Jr., of Augusta, Ga., reported a case of suprapubic prostatectomy, and described an improved method of after-treatment. He also narrated an unusual case of intraperitoneal hydatis.

Tracheotomy for Gunshot Wounds of the Trachea.—Dr. J. McFadden Gaston, of Atlanta, Ga., discussed the subject of gunshot wounds of the trachea, and the complications that were likely to occur from septic infection or laryngeal stenosis. He reported a case of gunshot wound of the trachea in a female child, eight years of age. The position of the incision in the trachea was lateral rather than on the anterior surface of the windpipe. The patient made an excellent recovery.

Rupture of the Diaphragm.—Dr. Geo. S. Brown, of Birmingham, Ala., contributed a paper on this subject, in which he reported an interesting and instructive case in a fireman, twenty-seven years of age, six feet tall, and weighing 190 pounds. The patient had hurt or strained his side slightly about two years before the rupture occurred. Although an operation was performed, the case terminated fatally.

Encephalomeningocele.—Dr. W. D. Haggard, of Nashville, Tenn., reported an unique case of encephalomeningocele, in a male child, four months of age. Operation was performed July 16, 1902. The child weighed six pounds. The tumor weighed five pounds, and measured 23 inches in diameter one way, and 17 inches another. Dr. Haggard also described an easy method of instituting peritoneal gauze drainage through the cul-de-sac.

Dr. J. B. Murfree, of Murfreesboro, Tenn., read a paper on Strangulated Hernia, and Dr. E. Denegre Martin, of New Orleans, reported two cases of cancer of the appendix.

BOOKS RECEIVED.

BLOOD PRESSURE. By Dr. L. F. Bishop. 12mo, 112 pages. E. B. Treat & Co., New York.

THE ART OF CROSS-EXAMINATION. By Dr. F. L. Wellman. 8vo, 404 pages. The Macmillan Co., New York.

PRACTICAL PHYSIOLOGICAL CHEMISTRY. By Drs. J. A. Milroy and T. H. Milroy. 8vo, 201 pages. Illustrated. Longmans, Green & Co., New York.

A MANUAL OF EXPERIMENTAL PHYSIOLOGY. By Dr. W. S. Hall. 8vo, 245 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

A TREATISE ON BRIGHT'S DISEASE AND DIABETES. By Dr. Jas. Tyson. Second edition. 8vo, 381 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.